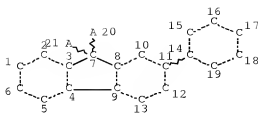


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L3 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 20

NSPEC IS RC AT 21

DEFAULT MLEVEL IS ATOM

DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 21

STEREO ATTRIBUTES: NONE

L7 1865 SEA FILE=REGISTRY SSS FUL L3
 L10 996 SEA FILE=HCAPLUS ABB=ON PLU=ON L7
 L12 462 SEA FILE=HCAPLUS ABB=ON PLU=ON L10(L)PREP/RL
 L13 297 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (POLYMER? OR
 PLASTIC?)/SC, SX
 L14 107 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND CONJUGAT?(3A)POLYM
 ER?
 L15 74 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND CONJUGAT?(A)POLYME
 R?
 L16 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND (1840-2003)/PRY,AY
 ,PY
 L17 80 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND CONJUGAT?(A)POLYM
 ER?
 L18 113 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 OR L17
 L19 37 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND (1840-2003)/PRY,AY
 ,PY
 L20 37 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L19

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L20 ANSWER 1 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1223788 HCAPLUS Full-text

DOCUMENT NUMBER: 143:478358

TITLE: Monomers and polymers comprising
 conjugated groups, their manufacture, and
 use in electroactive devices

INVENTOR(S): Cella, James Anthony; Shiang, Joseph John; Heller,
 Christian Maria Anton; Litz, Kyle Erik; Liu, Jie;
 Lewis, Larry Neil; Parthasarathy, Gautam; Duggal,
 Anil Raj; Simon, David Andrew

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: U.S. Pat. Appl. Publ., 38 pp., Cont.-in-part of
 Ser. No. US 2003-680470, filed on 7 Oct 2003

DOCUMENT TYPE: CODEN: USXXCO
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: English 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050256290	A1	20051117	US 2005-170423	20050629
US 20050075473	A1	20050407	US 2003-680470	20031007
WO 2007005289	A1	20070111	WO 2006-US24113	20060621
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RM: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1907437	A1	20080409	EP 2006-773672	20060621
R: DE, FR, GB, IT, NL				
KR 2008021711	A	20080307	KR 2007-730612	20071227
PRIORITY APPLN. INFO.:			US 2003-680470	A2 20031007
			US 2005-170423	A 20050629
			WO 2006-US24113	W 20060621

OTHER SOURCE(S): MARPAT 143:478358

ED Entered STN: 18 Nov 2005

AB Disclosed is a polymer composition derived from a bis-phenol comprising a conjugated aromatic radical, optionally comprising nitrogen. Suitable bis-phenols as well as methods for making the polymer are also disclosed. Also disclosed are electroactive layers comprising the polymer and electroactive devices comprising the layer. A polymer was prepared from 2,7-dibromo-9,9-dihexylfluorene, 9,9-dihexylfluorene-2,7-bis(trimethylene borate), and 2-bromo-9-(4-tert-butyl)phenyl-9-(4-hydroxy)phenylfluorene.

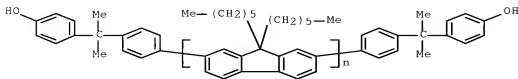
IT 969566-02-9P 869566-04-1P 869566-08-5P

869566-09-6P

(monomers and polymers comprising conjugated groups, their manufacture, and use in electroactive devices)

RN 869566-02-9 HCAPLUS

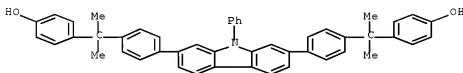
CN Poly(9,9-dihexyl-9H-fluorene-2,7-diyl), α,ω -bis[4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl]- (9CI) (CA INDEX NAME)



RN 869566-04-1 HCAPLUS
 CN Carbonochloridic acid, (1-methylethylidene)di-4,1-phenylene ester, polymer with α,ω -bis[4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl]poly(9,9-dihexyl-9H-fluorene-2,7-diyl) and 4,4'-[(9-phenyl-9H-carbazole-2,7-diyl)bis[4,1-phenylene(1-methylethylidene)]]bis[phenol] (9CI) (CA INDEX NAME)

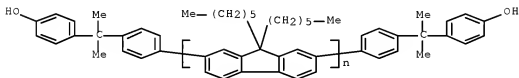
CM 1

CRN 869566-03-0
 CMF C48 H41 N O2



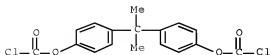
CM 2

CRN 869566-02-9
 CMF (C25 H32)_n C30 H30 O2
 CCI PMS



CM 3

CRN 2024-88-6
 CMF C17 H14 Cl2 O4



RN 869566-08-5 HCAPLUS
 CN Carbonochloridic acid, (1-methylethylidene)di-4,1-phenylene ester, polymer with 4,4'-[(phenylimino)bis[4,1-phenylene[9-[3,5-

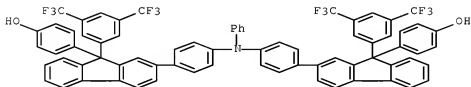
10/532,649

bis(trifluoromethyl)phenyl]-9H-fluorene-2,9-diyl]]bis[phenol] (9CI)
(CA INDEX NAME)

CM 1

CRN 869566-07-4

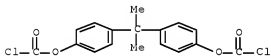
CMF C72 H43 F12 N O2



CM 2

CRN 2024-88-6

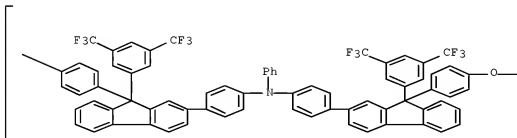
CMF C17 H14 C12 O4

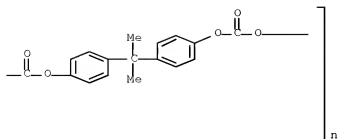


RN 869566-09-6 HCAPLUS

CN Poly[oxy carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxycarbonyloxy-1,4-phenylene[9-[3,5-bis(trifluoromethyl)phenyl]-9H-fluorene-9,2-diyl]-1,4-phenylene(phenylimino)-1,4-phenylene[9-[3,5-bis(trifluoromethyl)phenyl]-9H-fluorene-2,9-diyl]-1,4-phenylene] (9CI)
(CA INDEX NAME)

PAGE 1-A





IT 869565-84-4P

(monomers and polymers comprising conjugated groups, their manufacture, and use in electroactive devices)

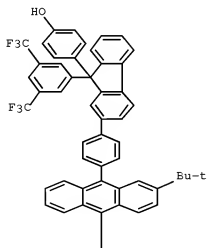
RN 869565-84-4 HCAPLUS

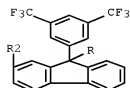
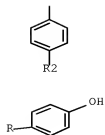
CN Carbonochloridic acid, (1-methylethylidene)di-4,1-phenylene ester, polymer with 4,4'-[[2-[(1,1-dimethylethyl)-9,10-anthracenediyl]bis[4,1-phenylene[9-[3,5-bis(trifluoromethyl)phenyl]-9H-fluorene-2,9-diyl]]]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 869565-83-3

CMF C84 H54 F12 O2

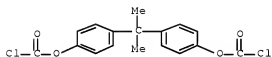




CM 2

CRN 2024-88-6

CMF C17 H14 C12 O4

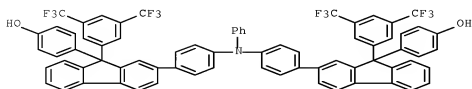


IT 869566-07-4P

(monomers and polymers comprising conjugated groups, their manufacture, and use in electroactive devices)

RN 869566-07-4 HCAPLUS

CN Phenol, 4,4'-[(phenylimino)bis[4,1-phenylene[9-[3,5-bis(trifluoromethyl)phenyl]-9H-fluorene-2,9-diyl]]]bis- (9CI) (CA INDEX NAME)



IC ICM C08G061-00
 ICS C08G064-00; C08G065-00; C08G077-00; C09K011-06; H05B033-14
 INCL 528219000; 528029000; 528196000; 528210000; 528211000; 257040000;
 428690000; 428917000; 313504000; 136263000
 CC 35-2 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 73
 ST conjugated group polymer electroactive device
 IT Electroluminescent devices
 Photoelectric devices
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)
 IT Polycarbonates, preparation
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)
 IT 353246-65-8DP, 2-(4-hydroxyphenyl)-2-(4-bromophenyl)propane-terminated
 353246-65-8DP, 2-bromo-9-(4-tert-butyl)phenyl-9-(4-
 hydroxy)phenylfluorene-terminated 849222-42-0P 849222-43-1P
 849222-49-7P 869565-88-8P 869565-89-9P 869565-90-2P
 869565-91-3P 869565-92-4P 869565-93-5P 869565-94-6P
 869565-95-7P 869565-96-8P 869565-97-9P 869565-98-0P
 869565-99-1P 869565-02-9P 869566-04-1P
 869566-05-2P 869566-08-5P 869566-09-6P
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)
 IT 849222-45-3P 869565-77-5P 869565-79-7P 869565-80-0P
 869565-81-1P 869565-82-2P 869565-84-4P 869565-86-6P
 869565-87-7P 869644-92-8P
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)
 IT 3096-56-8P, 2-Bromofluorenone 849222-40-8P 849222-41-9P
 869565-70-8P 869565-71-9P 869565-72-0P 869565-73-1P
 869565-74-2P 869565-76-4P 869566-00-7P 869566-07-4P
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)
 IT 108-95-2, Phenol, reactions 328-70-1, 3,5-Bis-
 trifluoromethylbromobenzene 486-25-9, Fluorenone 3972-65-4,
 4-Bromo-tert-butylbenzene 57103-20-5 73183-34-3 81090-53-1
 250597-29-6 278176-05-9 869565-75-3 869566-01-8 869566-06-3
 (monomers and polymers comprising conjugated
 groups, their manufacture, and use in electroactive devices)

L20 ANSWER 2 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:821178 HCAPLUS Full-text

DOCUMENT NUMBER: 143:239343

TITLE: Conjugated high polymer
 containing oxadiazole structure and its
 application

INVENTOR(S): Zhan, Xiaowei; Liu, Yunqi; Wu, Xia; Zhu, Daoben

PATENT ASSIGNEE(S): Institute of Chemistry, Chinese Academy of
 Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 12
 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

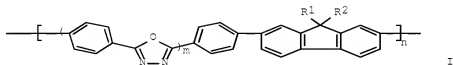
LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1421470	A	20030604	CN 2001-139774	20011130
PRIORITY APPLN. INFO.:			<--	
			CN 2001-139774	20011130
			<--	

ED Entered STN: 19 Aug 2005
GI



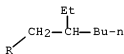
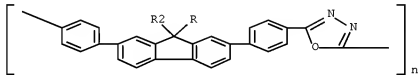
AB The oxadiazole-containing conjugated high polymer I (R1 and R2 = C4-10 alkyl and m = 1 or 2) is synthesized from 9H-fluorene by substitution reaction, bromination, polymerization, etc, and used as blue electroluminescent material in organic slab panel display device.

IT 410546-75-7P 410546-76-8P
(synthesis of conjugated high polymer containing oxadiazole structure used as blue electroluminescent material in organic slab panel display device)

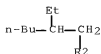
RN 410546-75-7 HCAPLUS

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



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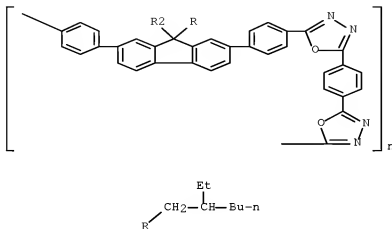


RN 410546-76-8 HCAPLUS

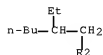
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-

1,4-phenylene[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



- IC ICM C08F034-00
ICS C09K011-06
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74
- ST *oxadiazole conjugated high polymer synthesis blue electroluminescent material*
- IT Electroluminescent devices
(displays; conjugated high polymer containing oxadiazole structure and its application)
- IT Luminescent screens
Luminescent substances
(electroluminescent; conjugated high polymer containing oxadiazole structure and its application)
- IT 136-64-1P, Terephthalic acidhydrazide 5933-32-4P, 4-Bromobenzoic acid hydrazide 19542-05-3P 31709-10-1P 69673-99-0P 264615-47-6P 344782-49-6P 367524-07-0P
(for synthesis of conjugated high polymer containing oxadiazole structure used as blue electroluminescent material in organic slab panel display device)
- IT 188200-93-3P
(for synthesis of conjugated high polymer containing oxadiazole structure used as blue electroluminescent

material in organic slab panel display device)

IT 86-73-7, 9H-Fluorene 120-61-6, Dimethyl terephthalate 5798-75-4,
Ethyl 4-bromobenzoate
(for synthesis of conjugated high polymer
containing oxadiazole structure used as blue electroluminescent
material in organic slab panel display device)

IT 410546-71-3P 410546-72-4P 410546-75-7P
410546-76-8P
(synthesis of conjugated high polymer containing
oxadiazole structure used as blue electroluminescent material in
organic slab panel display device)

L20 ANSWER 3 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:472210 HCAPLUS Full-text

DOCUMENT NUMBER: 143:8538

TITLE: Crosslinkable substituted fluorene compounds and
their conjugated oligomers or
polymers

INVENTOR(S): Inbasekaran, Michael; Yu, Wanglin

PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA

SOURCE: PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

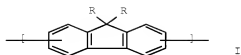
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005049689	A2	20050602	WO 2004-US36076	20041025
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WO 2005049689	A3	20050721		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
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GB 2424896	B	20080227		
CN 1882632	A	20061220	CN 2004-80033898	20041025
			<--	
DE 112004002221	T5	20070118	DE 2004-112004002221	20041025
			<--	
JP 2007528916	T	20071018	JP 2006-539570	20041025
			<--	
US 20070102695	A1	20070510	US 2006-579531	20060901
			<--	
PRIORITY APPLN. INFO.:			US 2003-520597P	P 20031117
			<--	
			WO 2004-US36076	W 20041025

ED Entered STN: 03 Jun 2005

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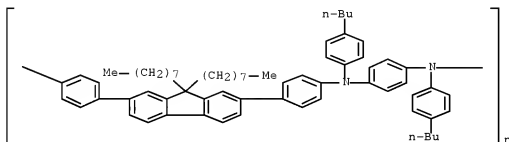


AB The crosslinkable substituted fluorene compound I (R = inert substituent, a monovalent crosslink forming group, a polyvalent crosslink forming group) is a monomer for preparing oligomers and polymers, which are useful for forming films, coatings and multilayer electronic devices, especially, electroluminescent devices.

IT 223569-28-6P 247922-75-4P
(crosslinkable substituted fluorene conjugated oligomers or polymers for films, coatings and multilayer electronic devices)

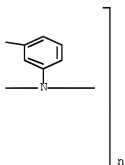
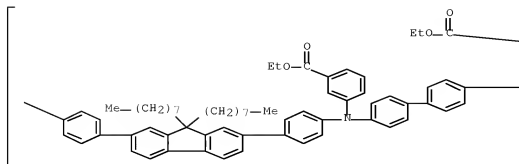
RN 223569-28-6 HCAPLUS

CN Poly[[(4-butylphenyl)imino]-1,4-phenylene[(4-butylphenyl)imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



RN 247922-75-4 HCAPLUS

CN Poly[[[3-(ethoxycarbonyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl[[3-(ethoxycarbonyl)phenyl]imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



- IC ICM C08G061-00
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 25, 42, 76
 ST fluorene substituted conjugated polymer
 electroluminescent device
 IT Coating materials
 Electric apparatus
 Electroluminescent devices
 Plastic films
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)
 IT Polyamines
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)
 IT 223569-28-6P 247922-75-4P 251983-79-6P 852534-15-7P 852534-16-8P 852534-17-9P 852534-18-0P
 852534-24-8P 852534-25-9P 852534-26-0P
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)
 IT 189367-54-2P 189382-11-4P 210347-49-2P 236092-91-4P

251981-68-7P 372200-89-0P 423774-96-3P 475579-79-4P
 852534-19-1P 852534-20-4P
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)

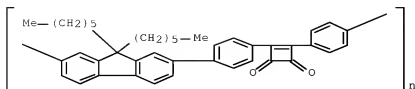
- IT 852534-23-7P
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)
- IT 74-31-7, N,N'-Diphenyl-1,4-phenylenediamine 92-66-0, 4-Bromobiphenyl
 107-21-1, Ethylene glycol, reactions 111-25-1, Hexylbromide
 122-39-4, reactions 128-08-5, N-Bromosuccinimide 531-91-9,
 N,N'-Diphenylbenzidine 1073-39-8 1592-20-7, 4-Vinylbenzyl chloride
 5419-55-6, Triisopropylborate 16433-88-8, 2,7-Dibromofluorene
 41492-05-1 58313-23-8, Ethyl 3-iodobenzoate 91692-63-6
 198964-46-4, 2,7-Dibromo-9,9-dioctylfluorene
 (crosslinkable substituted fluorene conjugated oligomers
 or polymers for films, coatings and multilayer electronic
 devices)

L20 ANSWER 4 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:353959 HCAPLUS Full-text
 DOCUMENT NUMBER: 143:60692
 TITLE: Polyalkylfluorene conjugated
 polymer and its application
 INVENTOR(S): Peng, Qiang; Xie, Minggui; Lu, Zhiyun; Huang, Yan;
 Jiang, Qing
 PATENT ASSIGNEE(S): Sichuan University, Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1438254	A	20030827	CN 2003-117424	20030310
			<--	
PRIORITY APPLN. INFO.:			CN 2003-117424	20030310
			<--	
ED Entered STN: 25 Apr 2005				
GI				

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

- AB The invention relates to the application of conjugated copolymer of (-A-B)_n
 where A is 9,9'-disubstituted fluorene segment and B is diaryl-substituted
 cyclobutenedione or maleimide as shown by I, II, poly[9-R1-9- R2-2,7-
 fluorenediyl-R3-1,4-phenylene-1,2-cyclobutenedione- 3,4-diyl-R4-1,4-phenylene]
 or III poly[9-R1-9-R2-2,7-fluorenediyl- R3-1,4-phenylene-1-R5-2,5-
 pyrroledione-3,4-diyl-R4-1,4-phenylene] (R1 and/or R2 = C1-20 alkyl or alkoxy;
 R3 and/or R4 = H or C1-20 alkyl or alkoxy; and R5 = C1-20 alkyl) as luminous
 layer and electron transport layer of LED or slab display.
- IT 596117-65-6P 596117-69-0P 596117-73-6P
 740844-12-6P
 (polyalkylfluorene conjugated polymer and its



IC ICM C08F132-08
 ICS C09K011-00
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 36, 73
 ST polyalkylfluorene conjugated polymer luminous material
 IT Polymers, preparation
 (conjugated; polyalkylfluorene conjugated polymer and its application)
 IT Electroluminescent devices
 (displays; polyalkylfluorene conjugated polymer and its application)
 IT Luminescent screens
 (electroluminescent; polyalkylfluorene conjugated polymer and its application)
 IT Electroluminescent devices
 (polyalkylfluorene conjugated polymer and its application)
 IT 191666-53-2P 250597-29-6P 342813-72-3P
 (polyalkylfluorene conjugated polymer and its application)
 IT 596117-63-4P 596117-65-6P 596117-67-8P
 596117-69-0P 596117-71-4P 596117-73-6P
 740844-11-5P 740844-12-6P
 (polyalkylfluorene conjugated polymer and its application)
 IT 111-25-1, n-Hexyl bromide 124-22-1, n-Dodecylamine 2892-51-5,
 Squaric acid 16433-88-8, 2,7-Dibromofluorene
 (polyalkylfluorene conjugated polymer and its application)
 L20 ANSWER 5 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:238583 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 142:317252
 TITLE: Conformationally flexible cationic
 conjugated polymers, their
 preparation, compositions, and articles
 INVENTOR(S): Bazan, Guillermo C.; Liu, Bin
 PATENT ASSIGNEE(S): The Regents of the University of California, USA
 SOURCE: U.S. Pat. Appl. Publ., 37 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20050059168	A1	20050317	US 2003-666333	20030917
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US 7144950	B2	20061205		
WO 2005056628	A2	20050623	WO 2004-US30566	20040917
			<--	
WO 2005056628	A3	20060309		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2004317085	A1	20050922	AU 2004-317085	20040917
			<--	
CA 2531568	A1	20050922	CA 2004-2531568	20040917
			<--	
WO 2005086617	A2	20050922	WO 2004-US30605	20040917
			<--	
WO 2005086617	A3	20060223		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1673410	A2	20060628	EP 2004-821601	20040917
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DE 112004001737	T5	20061228	DE 2004-112004001737	20040917
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JP 2007506283	T	20070315	JP 2006-527071	20040917
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US 20070274357	A1	20071129	US 2006-595179	20060821
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US 20070088130	A1	20070419	US 2006-561893	20061121
			<--	
PRIORITY APPLN. INFO.:			US 2003-666333	A 20030917
			<--	
			US 2004-607335P	P 20040903
			WO 2004-US30566	W 20040917
			WO 2004-US30605	W 20040917

AB The synthesis of cationic water-soluble polymers is given with backbone linkages which disrupt the ability of the polymers to form extended-rod structures. Such polymers may serve in the fabrication of novel optoelectronic devices and in the development of highly efficient biosensors, and application in assay methods. Thus, 2,7-dibromo-9,9-bis(6'-bromohexyl)fluorene (0.5 mmol), 1,3-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan)phenylene (0.5 mmol), Pd(PPh₃)₄ (8 mg) and potassium carbonate, water (3 mL) and PhMe (5 mL) mixture was refluxed at 85° for 20 h, and the product precipitated into MeOH.

IT 778649-06-2P 847930-87-4P

(conformationally flexible cationic conjugated polymers for optoelectronic devices)

RN 778649-06-2 HCAPLUS

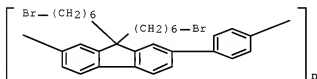
CN Methanamine, N,N-dimethyl-, compd. with poly[[9,9-bis(6-bromohexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (CA INDEX NAME)

CM 1

CRN 570414-32-3

CMF (C31 H34 Br2)n

CCI PMS



CM 2

CRN 75-50-3

CMF C3 H9 N



RN 847930-87-4 HCAPLUS

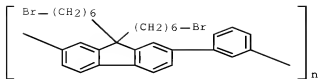
CN Methanamine, N,N-dimethyl-, compd. with poly[[9,9-bis(6-bromohexyl)-9H-fluorene-2,7-diyl]-1,3-phenylene] (9CI) (CA INDEX NAME)

CM 1

CRN 630111-28-3

CMF (C31 H34 Br2)n

CCI PMS



CM 2

CRN 75-50-3

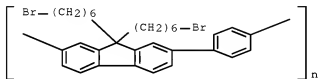
CMF C3 H9 N



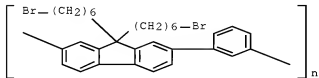
IT 570414-32-3P 630111-28-3P

(conformationally flexible cationic conjugated
polymers for optoelectronic devices)

RN 570414-32-3 HCAPLUS

CN Poly[[9,9-bis(6-bromohexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (CA
INDEX NAME)

RN 630111-28-3 HCAPLUS

CN Poly[[9,9-bis(6-bromohexyl)-9H-fluorene-2,7-diyl]-1,3-phenylene] (9CI)
(CA INDEX NAME)

IC ICM C08G063-48

ICS C08G063-91; G01N033-543

INCL 436518000; 525054100

CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 9

ST cationic water soluble conjugated polymer DNA

conjugate; phenylenebisboronic acid dibromofluorene deriv
 copolymer quaternary

IT Bioassay
 Biosensors
 Chemical library
 Conjugation (molecular association)
 Liquid crystals
 Optoelectronic semiconductor devices
 Photodiodes
 Semiconductor films
 Suzuki coupling reaction
 Transducers
 (conformationally flexible cationic conjugated
 polymers for optoelectronic devices)

IT DNA
 (fluorescein-labeled, conjugate with cationic
 conjugated polymers; conformationally flexible
 cationic conjugated polymers for optoelectronic
 devices)

IT Electric apparatus
 (optoelectronic; conformationally flexible cationic
 conjugated polymers for optoelectronic devices)

IT 778649-05-1P 778649-06-2P 847930-81-8P 847930-84-1P
 847930-87-4P 848028-77-3P 848028-78-4P
 (conformationally flexible cationic conjugated
 polymers for optoelectronic devices)

IT 570414-32-3P 570414-34-5P 630111-27-2P
 630111-28-3P 847930-78-3P
 (conformationally flexible cationic conjugated
 polymers for optoelectronic devices)

IT 626-00-6, 1,3-Diiodobenzene 629-03-8, 1,6-Dibromohexane
 16433-88-8, 2,7-Dibromofluorene 73183-34-3, Bis(pinacolato)diborane
 (conformationally flexible cationic conjugated
 polymers for optoelectronic devices)

IT 196212-27-8P 570414-33-4P
 (preparation and Suzuki coupling; conformationally flexible cationic
 conjugated polymers for optoelectronic devices)

REFERENCE COUNT: 219 THERE ARE 219 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 6 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:996248 HCAPLUS Full-text

DOCUMENT NUMBER: 141:425345

TITLE: Non-Conjugated polymeric
 perarylated boranes, use thereof as organic
 semiconductor transmitters and/or transport
 materials, methods for producing same and uses
 thereof

INVENTOR(S): Kanitz, Andreas; Rogler, Wolfgang; Woerle, Jasmin

PATENT ASSIGNEE(S): Osram Opto Semiconductors, Germany

SOURCE: PCT Int. Appl., 60 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004099291	A1	20041118	WO 2004-EP4901	20040507
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W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
DE 102004001865	A1	20041216	DE 2004-102004001865	20040113
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EP 1620492	A1	20060201	EP 2004-731627	20040507
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R: DE				
CN 1784455	A	20060607	CN 2004-80012523	20040507
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US 20060229431	A1	20061012	US 2004-555982	20040507
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JP 2006525395	T	20061109	JP 2006-505399	20040507
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PRIORITY APPLN. INFO.:			DE 2003-10320713	A 20030508
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			DE 2004-102004001865A	20040113
			WO 2004-EP4901	W 20040507
ED Entered STN: 19 Nov 2004				
GI				

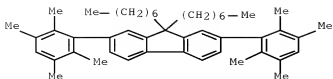
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Copolyarylborationes with non-conjugated aromatic and/or heteroarom. luminophors (as an example I, II or others) are transformed into a type of structure which acts like a conjugated polymer only when a suitable elec. field is applied and/or in case of strong donor substituents in aromatic part of the mol. Such polyarylborationes are used in organic light-emitting diodes, organic solar cells, organic photodetectors and organic field effect transistors. As an example, I is prepared by reacting of Grignard reagents of the appropriate fluorene component with diamine component and dimethoxymesitylboration in THF. OLED manufactured by coating ITO with II exhibits an effective electroluminescence with maximum 460-480 nm.

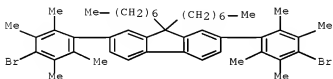
IT 794548-74-6P 794548-92-6P
(copolyarylborationes with non-conjugated luminophors useful in light-emitting diodes, organic solar cells, organic photodetectors and organic field effect transistors)

RN 794548-74-6 HCAPLUS

CN 9H-Fluorene, 9,9-diheptyl-2,7-bis(2,3,5,6-tetramethylphenyl)- (CA INDEX NAME)



RN 794548-92-8 HCAPLUS

CN 9H-Fluorene, 2,7-bis(4-bromo-2,3,5,6-tetramethylphenyl)-9,9-diheptyl-
(CA INDEX NAME)

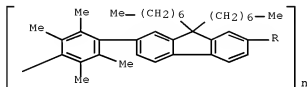
IT 794549-29-4P

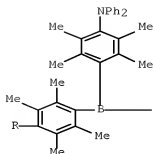
(copolyarylborationes with non-conjugated luminophors useful in
light-emitting diodes, organic solar cells, organic photodetectors and
organic field effect transistors)

RN 794549-29-4 HCAPLUS

CN Poly[[[4-(diphenylamino)-2,3,5,6-tetramethylphenyl]borylene](2,3,5,6-
tetramethyl-1,4-phenylene)(9,9-diheptyl-9H-fluorene-2,7-diyl)(2,3,5,6-
tetramethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)

PAGE 1-A





IC ICM C08G079-00
 ICS C08G079-08; C08G083-00; C08G077-56; H01L051-00
 CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)
 Section cross-reference(s): 28
 IT 33675-70-6P 34907-53-4P 197223-36-2P 351424-80-1P 351424-85-6P
 351432-43-4P 449144-21-2P 477855-60-0P 477855-70-2P
 794548-74-6P 794548-76-8P 794548-82-6P 794548-86-0P
 794548-89-3P 794548-92-8P 794548-94-0P 794548-96-2P
 794548-98-4P 794549-01-2P 794549-03-4P 794549-05-6P
 794549-07-8P 794549-09-0P 794549-11-4P 794549-13-6P
 794549-16-9P
 (copolyarylborationes with non-conjugated luminophors useful in light-emitting diodes, organic solar cells, organic photodetectors and organic field effect transistors)
 IT 2633-66-1DP, Mesitylmagnesium bromide, reaction products with polufluorenyleneborane 351424-83-4DP, reaction products with polufluorenyleneborane 794549-09-0DP, reaction products with polufluorenyleneborane 794549-21-6P 794549-23-8DP, reaction products with mesityl magnesium bromide 794549-26-1P
 794549-29-4P 794549-34-1P
 (copolyarylborationes with non-conjugated luminophors useful in light-emitting diodes, organic solar cells, organic photodetectors and organic field effect transistors)
 REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:696394 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:207660
 TITLE: Monomers, conjugated polymers, their production, and electronic devices using conjugated light-emitting polymers
 INVENTOR(S): Wang, Hailiang; Uckert, Frank P.; Kim, Sunghan
 PATENT ASSIGNEE(S): E.I. Du Pont De Nemours and Company, USA
 SOURCE: PCT Int. Appl., 55 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2004072123 A2 20040826 WO 2004-US4163 20040210
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 WO 2004072123 A3 20041229
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
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 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NA, NI
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT,
 BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
 IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
 CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
 US 20040192871 A1 20040930 US 2004-771014 20040203
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 US 7138483 B2 20061121
 PRIORITY APPLN. INFO.: US 2003-446823P P 20030212
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ED Entered STN: 26 Aug 2004

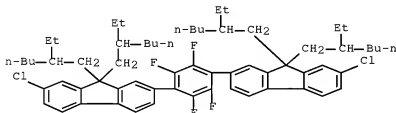
AB The energy levels (HOMO, LUMO) of the conjugated polymer are tuned independently, so that an energy match on both sides of the device can be accomplished while keeping the emission color in the blue region. Such polymers can be formed by polymerization of a mixture of monomers. The mixture of the monomers contains ≥ 1 monomer having an electron-deficient group sandwiched by 2 aromatic hydrocarbon groups and ≥ 1 hole transporting (HT) monomer. The mixture of monomers may also contain a solubility enhancement (SE) monomer and/or a branching monomer. These polymers can be used in fabricating light emitting diodes to achieve high efficiency and blue color purity.

IT 744214-00-4P

(preparation, purification, and polymerization; monomers and blue light emitting conjugated polymers for electronic devices)

RN 744214-00-4 HCAPLUS

CN 9H-Fluorene, 2,2'-(2,3,5,6-tetrafluoro-1,4-phenylene)bis[7-chloro-9,9-bis(2-ethylhexyl)- (CA INDEX NAME)]



IC ICM C08F

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73, 76

ST blue light emitting diode conjugated polymer

IT Polyoxadiazoles

(aromatic; monomers and blue light emitting conjugated polymers for electronic devices)

IT Electroluminescent devices

(blue-emitting; monomers and blue light emitting conjugated

polymers for electronic devices)

IT Electroluminescent devices
(monomers and blue light emitting conjugated polymers for electronic devices)

IT 99586-26-2P 744213-95-4P 744213-96-5P
(intermediate; monomers and blue light emitting conjugated polymers for electronic devices)

IT 744214-02-6P 744214-03-7P 744214-04-8P 744214-05-9P
744214-06-0P 744214-08-2P
(monomers and blue light emitting conjugated polymers for electronic devices)

IT 50926-11-9, ITO 126213-51-2, PEDOT
(monomers and blue light emitting conjugated polymers for electronic devices)

IT 124-38-9, Carbon dioxide, reactions 128-09-6, N-Chlorosuccinimide
344-03-6, 1,4-Dibromotetrafluorobenzene 1133-80-8 3383-83-3,
1-Bromo-3,7-dimethyloctane 5419-55-6, Triisopropylborate
6825-20-3, 3,6-Dibromocarbazole 14011-37-1, Hydrazine hydrochloride
16433-88-8, 2,7-Dibromofluorene 18908-66-2, 2-Ethylhexyl bromide
24171-03-7 50915-80-5, 1-Bromo-3,5,5-trimethylhexane 102871-58-9,
2,7-Dichlorocarbazole
(monomers and blue light emitting conjugated polymers for electronic devices)

IT 632331-65-8P 744213-99-8P
(monomers and blue light emitting conjugated polymers for electronic devices)

IT 188200-93-3P 660394-00-3P 660394-01-4P 744213-97-6P
744213-98-7P 744214-00-4P 744214-01-5P
(preparation, purification, and polymerization; monomers and blue light emitting conjugated polymers for electronic devices)

L20 ANSWER 8 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:413000 HCAPLUS Full-text

DOCUMENT NUMBER: 140:424112

TITLE: Polymers having fluorenyl backbones capable of transporting electrons

INVENTOR(S): Burroughes, Jeremy; Friend, Richard; Foden, Clare

PATENT ASSIGNEE(S): Cambridge Display Technology Limited, UK

SOURCE: PCT Int. Appl., 24 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

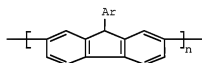
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004041902	A2	20040521	WO 2003-GB4753	20031104
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WO 2004041902	A3	20040812		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,			

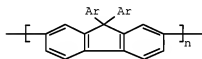
DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG

AU 2003285484	A1	20040607	AU 2003-285484	20031104
			<--	
EP 1569980	A2	20050907	EP 2003-778486	20031104
			<--	
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,		
		PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK		
CN 1726243	A	20060125	CN 2003-80105763	20031104
			<--	
JP 2006505647	T	20060216	JP 2004-549336	20031104
			<--	
US 20060228576	A1	20061012	US 2005-533989	20050505
			<--	
PRIORITY APPLN. INFO.:			GB 2002-25869	A 20021106
			<--	
			WO 2003-GB4753	W 20031104
			<--	

ED Entered STN: 21 May 2004
GI



I



II

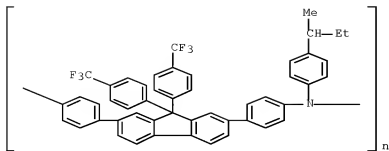
AB Disclosed is a polymer comprising optionally substituted repeat units of formulas (I) and (II): wherein Ar is selected from: (a) aromatic hydrocarbon substituted with at least one electron withdrawing group or (b) electron withdrawing heteroaryl. The polymers have application in electroluminescent devices.

IT 691356-26-2P

(polymers having fluorenyl backbones capable of transporting electrons)

RN 691356-28-2 HCAPLUS

CN Poly[[[4-(1-methylpropyl)phenyl]imino]-1,4-phenylene[9,9-bis[4-(trifluoromethyl)phenyl]-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI)
(CA INDEX NAME)

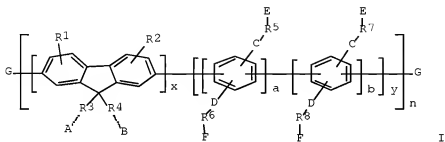


IC ICM C08G061-02
ICS C09K011-06; H01L051-00
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73
IT Polymers, properties
(conjugated; polymers having fluorenyl
backbones capable of transporting electrons)
IT 690994-38-8P 690994-39-9P 690994-40-2P 690994-42-4P
691356-28-2P
(polymers having fluorenyl backbones capable of transporting
electrons)
L20 ANSWER 9 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:370984 HCAPLUS Full-text
DOCUMENT NUMBER: 140:357892
TITLE: Cationic water-soluble conjugated
polymers and their precursors
INVENTOR(S): Liu, Bin
PATENT ASSIGNEE(S): Agency for Science Technology and Research,
Singapore
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004037886	A1	20040506	WO 2003-SG252	20031023
<--				
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
SG 111090	A1	20050530	SG 2002-6545	20021025
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AU 2003278676	A1	20040513	AU 2003-278676	20031023
			<--	
US 20060142522	A1	20060629	US 2005-532649	20051012
			<--	
PRIORITY APPLN. INFO.:			SG 2002-6545	A 20021025
			<--	
			WO 2003-SG252	W 20031023
			<--	

ED Entered STN: 07 May 2004
GI



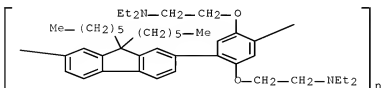
AB Conjugated polymers of the formula (I) wherein: R1, and R2 = H, a straight or branched alkyl, alkoxy, ester groups or cyclic crown ether groups having C1-22; A, B, E, and F = H, Si R'R'', or NR'R'' (but can not all be H or SiR'R''); R' and R'' = H, unbranched or branched alkyl or alkoxy groups having C1-12, (C3-10) cycloalkyl groups; C and D = H (but can not both be H), O, S, CO, COO, CRR', NR', SiR'R'', wherein R' and R'' are as defined above; R3, R4, R5, R6, R7, and R8 = linear or branched or cyclical saturated or unsatd. aliphatic moieties which may contain one or more heteroatoms and which may contain one or more aromatic groups, substituted or unsubstituted aromatic moieties; G = hydrogen, halogen, boronic acid, boronate radical, or an aryl moiety; a and b = 0-100; x and y = 0-100; and n = 1-1000.

IT 439938-43-9P 439938-46-2P

(cationic water-soluble conjugated polymers and their precursors)

RN 439938-43-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-(diethylamino)ethoxy]-1,4-phenylene]] (9CI) (CA INDEX NAME)



RN 439938-46-2 HCAPLUS

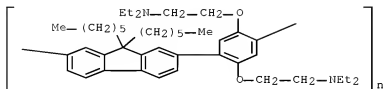
CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-(diethylamino)ethoxy]-1,4-phenylene]], compd. with bromoethane (9CI) (CA INDEX NAME)

CM 1

CRN 439938-43-9

CMF (C43 H62 N2 O2)n

CCI PMS



CM 2

CRN 74-96-4

CMF C2 H5 Br



IC ICM C08G061-10

ICS H05B033-14

CC 35-5 (Chemistry of Synthetic High Polymers)

ST cationic ammonium quaternized fluorenyl water soluble conjugated polymer

IT Polymerization catalysts

(cationic water-soluble conjugated polymers and their precursors)

IT Polymers, preparation

(conjugated; cationic water-soluble conjugated polymers and their precursors)

IT Polymers, preparation

(water-soluble; cationic water-soluble conjugated polymers and their precursors)

IT 1112-67-0, Tetrabutylammonium chloride 3375-31-3, Palladium diacetate 14221-01-3, Tetrakis(triphenylphosphine)palladium 681858-73-1

(cationic water-soluble conjugated polymers and their precursors)

IT 439938-40-6P 439938-43-9P 439938-44-0P

439938-46-2P 681858-72-0P

(cationic water-soluble conjugated polymers and their precursors)

IT 2674-34-2P, 1,4-Dibromo-2,5-dimethoxybenzene 14753-51-6P

189367-54-2P, 2,7-Dibromo-9,9-dihexylfluorene 233753-19-0P

233753-20-3P 250597-29-6P

(cationic water-soluble conjugated polymers and their precursors)

IT 74-96-4, Bromoethane 111-25-1, 1-Bromohexane 121-43-7, Trimethyl

borate 150-78-7, 1,4-Dimethoxybenzene 869-24-9,
 2-(Diethylamino)ethyl chloride hydrochloride 7726-95-6, Bromine,
 reactions 16433-88-8, 2,7-Dibromofluorene
 (cationic water-soluble conjugated polymers and
 their precursors)

L20 ANSWER 10 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:875368 HCAPLUS Full-text
 DOCUMENT NUMBER: 139:365744
 TITLE: Solution-processable phosphorescent materials
 INVENTOR(S): Holmes, Andrew; Sandee, Albertus; Williams,
 Charlotte; Koshler, Anna; Evans, Nick
 PATENT ASSIGNEE(S): Cambridge University Technical Services Limited,
 UK
 SOURCE: PCT Int. Appl., 79 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003091355	A2	20031106	WO 2003-GB1765	20030424
<--				
WO 2003091355	A3	20040304		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003227881	A1	20031110	AU 2003-227881	20030424
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EP 1501907	A2	20050202	EP 2003-725341	20030424
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005524725	T	20050818	JP 2003-587896	20030424
<--				
CN 1662628	A	20050831	CN 2003-814689	20030424
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US 20060063026	A1	20060323	US 2005-511954	20050711
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PRIORITY APPLN. INFO.:			GB 2002-9652	A 20020426
<--				
			WO 2003-GB1765	W 20030424
<--				

ED Entered STN: 07 Nov 2003

AB A material capable of luminescence comprising: a polymer or oligomer; and an organometallic group characterized in that the polymer or oligomer is at least partially conjugated and the organometallic group is covalently bound to the polymer or oligomer and the nature, location and/or proportion of the polymer or oligomer and of the organometallic group in the material are selected so

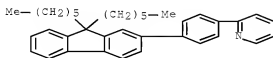
that the luminescence predominantly is phosphorescence. The phosphorescent materials are useful for OLED (organic light-emitting diodes), etc.

IT 620624-98-8P 620625-01-6P 620625-03-8P
620625-05-0P 620625-07-2P 620625-09-4P

(manufacture of solution-processable phosphorescent materials useful for OLED)

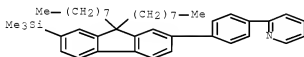
RN 620624-98-8 HCAPLUS

CN Pyridine, 2-[4-(9,9-dihexyl-9H-fluoren-2-yl)phenyl]- (CA INDEX NAME)



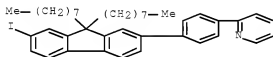
RN 620625-01-6 HCAPLUS

CN Pyridine, 2-[4-[9,9-dioctyl-7-(trimethylsilyl)-9H-fluoren-2-yl]phenyl]- (CA INDEX NAME)



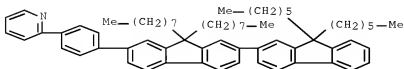
RN 620625-03-8 HCAPLUS

CN Pyridine, 2-[4-(7-iodo-9,9-dioctyl-9H-fluoren-2-yl)phenyl]- (CA INDEX NAME)



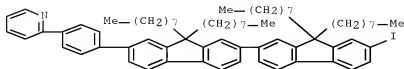
RN 620625-05-0 HCAPLUS

CN Pyridine, 2-[4-(9',9'-dihexyl-9,9-dioctyl[2,2'-bi-9H-fluoren]-7-yl)phenyl]- (CA INDEX NAME)



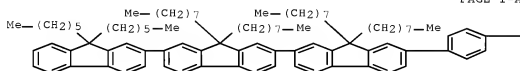
RN 620625-07-2 HCAPLUS

CN Pyridine, 2-[4-(7'-iodo-9,9,9',9'-tetraoctyl[2,2'-bi-9H-fluoren]-7-yl)phenyl]- (CA INDEX NAME)



RN 620625-09-4 HCAPLUS

CN Pyridine, 2-[4-(9'',9''-dihexyl-9,9,9',9'-tetraoctyl[2,2':7',2''-ter-9H-fluoren]-7-yl)phenyl]- (9CI) (CA INDEX NAME)



PAGE 1-A

PAGE 1-B



IC ICM C09K

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 29, 73, 76

ST OLED phosphorescent material conjugated polymer organometallic compd luminescence

IT 7439-88-5DP, Iridium, conjugated polymer complexes
63996-36-1DP, 2-(4-Bromophenyl)pyridine, conjugated
polymer terminated products with, Ir complexes 92220-65-0DP,
conjugated polymer terminated products
195456-48-5DP, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl),
pyridylphenyl-terminated, iridium complex 198964-76-0DP,
2,7-Di(4,4,5,5-tetramethyl-1,3,2-dioxaboronate)-9,9-dioctylfluorene-
2,7-dibromo-9,9-dioctylfluorene copolymer, pyridylphenyl-terminated,
iridium complex 620624-90-0DP, conjugated polymer
terminated products
(manufacture of solution-processable phosphorescent materials useful for
OLED)

IT	63996-36-1P,	2-(4-Bromophenyl)pyridine	80389-85-1P	620624-90-0P
	620624-92-2P	620624-96-6P	620624-98-8P	
	620625-01-6P	620625-03-8P	620625-05-0P	
	620625-07-2P	620625-09-4P	620625-10-7P	

620625-11-8P 620625-12-9P 620625-13-0P

(manufacture of solution-processable phosphorescent materials useful for OLED)

L20 ANSWER 11 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:861097 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 140:60082

TITLE: Optical and Electrical Properties of π -Conjugated Polymers Based on Electron-Rich 3,6-Dimethoxy-9,9-dihexylfluorene Unit

AUTHOR(S): Beaupre, Serge; Leclerc, Mario

CORPORATE SOURCE: Canada Research Chair in Polymer Chemistry, Departement de Chimie, Universite Laval, Quebec City, QC, G1K 7P4, Can.

SOURCE: Macromolecules (2003), 36(24), 8986-8991

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 04 Nov 2003

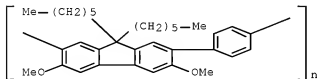
AB A new family of π -conjugated polymers has been developed using 3,6-dimethoxy-9,9-dihexylfluorene as an electron-rich unit. These electroactive and photoactive polymers have been prepared from nickel(0)-mediated coupling or by palladium-catalyzed Suzuki coupling. These new 3,6-dimethoxy-9,9-dihexylfluorene-based copolymers have demonstrated emission spanning the entire visible spectrum. Moreover, all of these polymers show reversible electroactivity upon reduction and oxidation, and as expected, the presence of methoxy groups onto the fluorene moiety increases the ionization potential of the resulting copolymers by about 0.2 eV when compared with some 9,9-dihexylfluorene-based copolymers. The reduction of the energy barrier for the injection of holes in related polymeric light-emitting devices should contribute to the enhancement of their performances.

IT 637771-53-0P

(optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)

RN 637771-53-0 HCAPLUS

CN Poly[(9,9-dihexyl-3,6-dimethoxy-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

ST dimethoxydihexylfluorene conjugated polymer

synthesis thermal optical electrochem property

IT UV absorption

(UV-visible; optical and elec. properties of π -conjugated polymers based on electron-rich

- 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT Polymers, preparation
(conjugated; optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT Band gap
Cyclic voltammetry
Fluorescence
Glass transition temperature
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Oxidation potential
Reduction potential
Thermal stability
(optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT Conducting polymers
(polythiophenes, fluorene-containing; optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT 637771-45-0P
(monomer; preparation of by bromination, and in synthesis of π -conjugated polymers)
- IT 637771-42-7P
(monomer; preparation of by bromination, in reaction with dioxaborolane derivative, or in synthesis of π -conjugated polymers)
- IT 637771-43-8P
(monomer; preparation of, and in synthesis of π -conjugated polymers)
- IT 637771-46-1P 637771-47-2P 637771-48-3P 637771-49-4P
637771-50-7P 637771-51-8P 637771-52-9P 637771-53-0P
637771-54-1P 637771-55-2P 637771-56-3P 637771-57-4P
(optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 12 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:513705 HCAPLUS Full-text

DOCUMENT NUMBER: 140:89439

TITLE: Size-specific interactions between single- and double-stranded oligonucleotides and cationic water-soluble oligofluorenes

AUTHOR(S): Wang, Shu; Liu, Bin; Gaylord, Brent S.; Bazan, Guillermo C.

CORPORATE SOURCE: Departments of Chemistry and Materials Institute for Polymers and Organic Solids, University of California, Santa Barbara, CA, 93106, USA

SOURCE: Advanced Functional Materials (2003), 13(6), 463-467

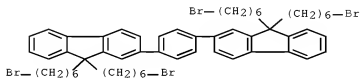
CODEN: AFMDC6; ISSN: 1616-301X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

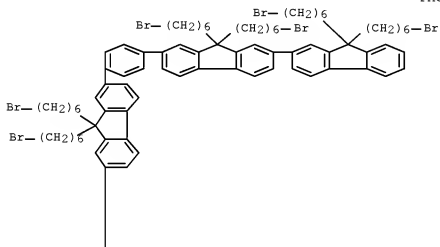
DOCUMENT TYPE: Journal

LANGUAGE: English

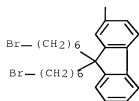
IT 550372-31-1P 642472-62-6P 642472-63-7P
 (preparation of cationic water-soluble oligofluorenes and size-specific interactions with single- and double-stranded oligonucleotides)
 RN 550372-31-1 HCAPLUS
 CN 9H-Fluorene, 2,2'-(1,4-phenylene)bis[9,9-bis(6-bromohexyl)- (CA INDEX NAME)]



RN 642472-62-6 HCAPLUS
 CN 2,2'-Bi-9H-fluorene, 9,9,9',9'-tetrakis(6-bromohexyl)-7-[4-[9,9,9',9'-tetrakis(6-bromohexyl)[2,2'-bi-9H-fluoren]-7-yl]phenyl]- (CA INDEX NAME)



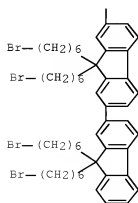
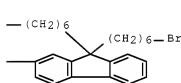
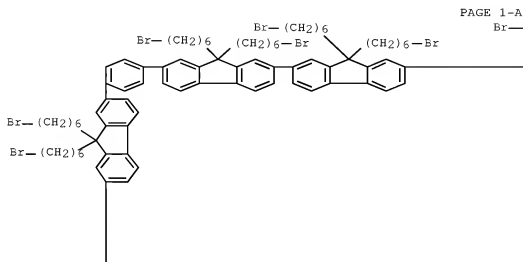
PAGE 1-A



PAGE 2-A

RN 642472-63-7 HCAPLUS

CN 2,2':7',2''-Ter-9H-fluorene, 7,7'''-(1,4-phenylene)bis[9,9,9',9'',9'''-hexakis(6-bromohexyl)- (9CI) (CA INDEX NAME)



CC 6-2 (General Biochemistry)
 Section cross-reference(s): 25
 IT 550372-35-5P 642472-64-8P 642472-65-9P
 (preparation of cationic water-soluble oligofluorenes and size-specific interactions with single- and double-stranded oligonucleotides)
 IT 123348-27-6P 438201-29-7P 550372-31-1P 642472-56-8P
 642472-57-9P 642472-58-0P 642472-59-1P 642472-60-4P
 642472-61-5P 642472-62-6P 642472-63-7P
 (preparation of cationic water-soluble oligofluorenes and size-specific interactions with single- and double-stranded oligonucleotides)
 REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 13 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:505500 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:214817

TITLE: Synthesis and Optical and Electroluminescent Properties of Novel Conjugated Copolymers Derived from Fluorene and Benzoselenadiazole

AUTHOR(S): Yang, Renqiang; Tian, Renyu; Hou, Qiong; Yang, Wei; Cao, Yong

CORPORATE SOURCE: Institute of Polymer Optoelectronic Materials and Devices, South China University of Technology, Canton, 510640, Peop. Rep. China

SOURCE: Macromolecules (2003), 36(20), 7453-7460
 CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

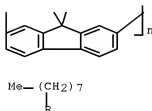
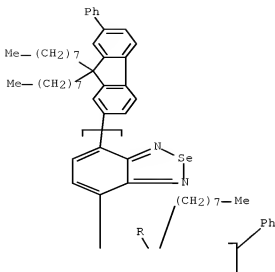
ED Entered STN: 03 Jul 2003

AB A novel series of light-emitting copolymers derived from 9,9-dioctylfluorene (DOF) and 2,1,3-benzoselenadiazole (BSeD) is prepared by means of palladium-catalyzed Suzuki coupling reaction. The feed ratios of DOF to BSeD were 50:50, 85:15, 92:8, and 98:2, resp. All of the copolymers are soluble in common organic solvents and highly fluorescent in solid state. Devices from such copolymers emit orange-red light with $\lambda_{\text{max}} = 570\text{--}600\text{ nm}$. The maximal EL emissions of the devices slightly red-shifted gradually with increasing BSeD's contents. The maximal external quantum efficiency of the polymer light-emitting devices (PLED) reaches 1.0%, which indicates that this new seleno-containing EL polymer based on fluorene and benzoselenadiazole is a promising candidate for fabricating PLEDs.

IT 587850-05-3P
 (synthesis, optical and electroluminescent properties of novel conjugated copolymers derived from fluorene and benzoselenadiazole)

RN 587850-05-3 HCAPLUS

CN Poly[2,1,3-benzoselenadiazole-4,7-diyl(9,9-dioctyl-9H-fluorene-2,7-diyl)], α -(9,9-dioctyl-7-phenyl-9H-fluorene-2-yl)- ω -phenyl-(9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 73
 IT Polymers, preparation
 (conjugated; synthesis, optical and electroluminescent
 properties of novel conjugated copolymers derived from fluorene and
 benzoselenadiazole)
 IT 108-86-1DP, Bromobenzene, end-capped of conjugated copolymers
 587850-03-1DP, end-capped with bromobenzene 587850-05-3P
 587850-07-5DP, end-capped with bromobenzene
 (synthesis, optical and electroluminescent properties of novel
 conjugated copolymers derived from fluorene and benzoselenadiazole)
 REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 14 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:381734 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 138:354385
 TITLE: Tuning HOMO and LUMO energy levels of blue
 light-emitting polyfluorene derivatives
 AUTHOR(S): Liu, Bin; Yu, Wang-Lin; Pei, Jian; Lai, Yee-Hing;

CORPORATE SOURCE: Huang, Wei
 Dep. of Chem., Natl. Univ. of Singapore,
 Singapore, 117543, Singapore
 SOURCE: Polymeric Materials Science and Engineering (2001), 84, 1041-1042
 CODEN: PMSDGG; ISSN: 0743-0515
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 20 May 2003

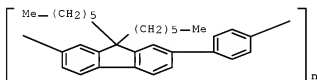
AB Ten polyfluorene copolymers were synthesized by Pd catalyzed Suzuki reactions of fluorene and aryl monomers. The optical, electrochem. and thermal properties of the polymers all exhibited dependence on the changes of main chain structure and side chain groups on the phenylene ring. Through the modification of either main chain or side chains, both the HOMO and LUMO energy levels could be tuned within 0.4 to 0.5 eV for the blue light emitting polymers. Such a wide tuning of MO energy levels in blue light emitting polymers is of interest for use in efficient blue light emitting devices.

IT 203927-85-9P 297153-12-9P 297153-14-1P
 297153-16-3P

(chain structure design for tuning HOMO and LUMO energy levels of blue light-emitting polyfluorene electroactive polymers prepared via Suzuki coupling)

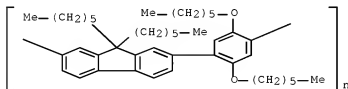
RN 203927-85-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



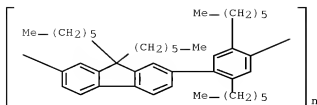
RN 297153-12-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) [2,5-bis(hexyloxy)-1,4-phenylene]] (CA INDEX NAME)



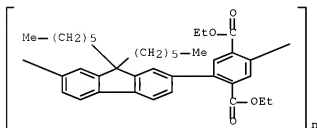
RN 297153-14-1 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) (2,5-dihexyl-1,4-phenylene)] (CA INDEX NAME)



RN 297153-16-3 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis(ethoxycarbonyl)-1,4-phenylene]] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 74

ST polyfluorene prepn palladium catalyst Suzuki coupling energy level
tuning; side chain phenylene substituent effect energy level
polyfluorene; redox potential electrochem polyfluorene
conjugated polymer

IT Polymers, preparation

(conjugated; chain structure design for tuning HOMO and
LUMO energy levels of blue light-emitting polyfluorene
electroactive polymers prepared via Suzuki coupling)

IT 133019-09-7P, Poly(9,9-dihexylfluorene), sru 203927-85-9P

297153-12-3P 297153-14-1P 297153-15-2P

297153-16-3P 313277-99-5P 353246-66-9P 353246-67-0P

353246-68-1P 353246-69-2P 353246-70-5P 353246-71-6P

353246-72-7P 353246-74-9P 353246-75-0P 353246-76-1P

353246-79-4P 354529-21-8P

(chain structure design for tuning HOMO and LUMO energy levels of
blue light-emitting polyfluorene electroactive polymers prepared via
Suzuki coupling)REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 15 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:377716 HCAPLUS Full-text

DOCUMENT NUMBER: 139:101515

TITLE: Photoinduced changes of the refractive index in
substituted fluorenyl-p-phenylene copolymersAUTHOR(S): Schofberger, Wolfgang; Zaami, Noredidine; Mahler,
Kai Arnulf; Langer, Gregor; Jakopic, Georg;

Pogantsch, Alexander; Kern, Wolfgang; Stelzer, Franz

CORPORATE SOURCE: Institute of Chemistry and Technology of Organic Materials, Graz University of Technology, Graz, 8010, Austria

SOURCE: Macromolecular Chemistry and Physics (2003), 204(5/6), 779-786

CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

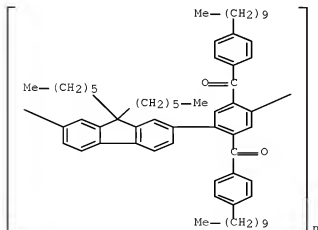
ED Entered STN: 18 May 2003

AB A series of substituted 9,9'-dihexylfluorenylene-p-phenylene copolymers (DFPP) were synthesized via a Suzuki coupling reaction. The copolymers were chemical modified to introduce photoreactive functionalities. Thiocyanate groups (SCN) were attached onto a side chain of the DFPP copolymers. After exposure to UV light the SCN groups underwent photoisomerization to the corresponding isothiocyanate groups (NCS). A significant change of the refractive index was observed after UV illumination. After this process the polymer was further modified by a gas phase reaction with propylamine to transform the photo-generated NCS groups to derivs. of thiourea. An addnl. variation of the refractive index as well as an increase of the film thickness Δh (+ 15%), was observed after this reaction. All polymerization products were characterized by means of gel permeation chromatog., thermoanal. as well as NMR and IR spectroscopy. The polymers are thermally stable with decomposition temps. of around 260 °C and glass transition temps. in the range of 150-155°C. The polymers display blue photoluminescence, which remains unchanged after UV modification and reaction with propylamine. A convenient way to produce index and relief patterns in films of conjugated polymers is demonstrated.

IT 561063-52-3DF, reduction by LiAlH₄, reaction products with bromomethylbenzoyl bromide, ammonium rhodanide, photoisomerization, reaction products with propylamine 561063-52-3P (photoinduced changes of refractive index in substituted fluorenyl-p-phenylene copolymers)

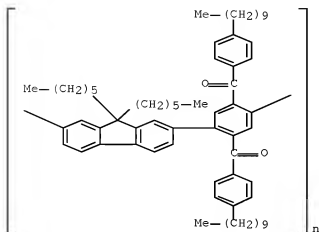
RN 561063-52-3 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis(4-decylbenzoyl)-1,4-phenylene]] (9CI) (CA INDEX NAME)



RN 561063-52-3 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) [2,5-bis(4-decylbenzoyl)-1,4-phenylene]] (9CI) (CA INDEX NAME)



CC 35-8 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 38

IT 876-07-3DP, p-Bromomethylbenzoyl bromide, reaction products with reduced poly(fluorenylene phenylene), then with ammonium rhodanide, photoisomerization, reaction products with propylamine 1762-95-4DP, reaction products with poly(fluorenylene phenylene) derivative, then photoisomerization, reaction products with propylamine 16853-85-3DP, Lithium aluminum hydride, reaction products with poly(fluorenylene phenylene), then with bromomethylbenzoyl bromide, ammonium rhodanide, photoisomerization, reaction products with propylamine 561063-51-2DP, reduction by LiAlH₄, reaction products with bromomethylbenzoyl bromide, ammonium rhodanide, photoisomerization, reaction products with propylamine 561063-51-2P 561063-52-3DP, reduction by LiAlH₄, reaction products with bromomethylbenzoyl bromide, ammonium rhodanide, photoisomerization, reaction products with propylamine 561063-52-3P (photoinduced changes of refractive index in substituted fluorenyl-p-phenylene copolymers)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 16 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:365656 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:64962

TITLE: Effect of Chromophore-Charge Distance on the Energy Transfer Properties of Water-Soluble Conjugated Oligomers

AUTHOR(S): Liu, Bin; Gaylord, Brent S.; Wang, Shu; Bazan, Guillermo C.

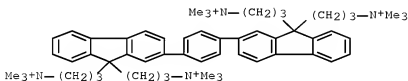
CORPORATE SOURCE: Institute for Polymers and Organic Solids, Departments of Chemistry and Materials, University of California, Santa Barbara, CA, 93106, USA

SOURCE: Journal of the American Chemical Society (2003), 125(22), 6705-6714
CODEN: JACSAT; ISSN: 0002-7863

AB The synthesis of 1,4-bis(9,9'-bis(3''-(N,N,N-trimethylammonium)- propyl)-2'-fluorenyl)benzene tetrabromide (C3), 1,4-bis(9,9'-bis(4''-(N,N,N-trimethylammonium)-butyl)-2'-fluorenyl)benzene tetrabromide (C4), 1,4-bis(9,9'-bis(6''-(N,N,N-trimethylammonium)-hexyl)-2'- fluorenyl)benzene tetrabromide (C6), and 1,4-bis(9,9'-bis(8''-(N,N,N- trimethylammonium)-octyl)-2'-fluorenyl)benzene tetrabromide (C8) is reported. Fluorescence energy transfer expts. between C3-C8 and the acceptors pentasodium 1,4-bis(4'(2'',4''-bis(butoxysulfonate)- styryl)styryl)-2-(butoxysulfonate)-5-methoxybenzene (3), fluorescein labeled single-stranded DNA and fluorescein labeled double-stranded DNA in water, buffer, and methanol reveal the importance of hydrophobic and electrostatic forces in determining chromophore-chromophore close proximity. In water, the oligomers with longer side chain length show better energy transfer, as well as higher Stern-Volmer quenching consts. (Ksv), largely due to a stronger hydrophobic attraction between the optically active components. In methanol, the differences in energy transfer are leveled, and the oligomers with shorter side chain lengths show higher Ksv values. Compds. C3, C4, C6, and C8 were also used to dissect the different contributors to DNA hybridization assays based on cationic conjugated polymers.

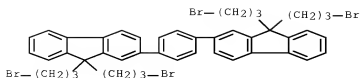
(effect of Chromophore-Charge Distance on Energy Transfer Properties of Water-Soluble Conjugated Oligomers)

CN 9H-Fluorene-9,9-dipropanaminium, 2,2'-(1,4-phenylene)bis[N,N,N,N',N',N'-hexamethyl-, tetrabromide (9CI) (CA INDEX NAME)



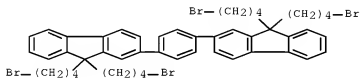
●₄ Br⁻

CN 9H-Fluorene-9,9-dibutanaminium, 2,2'-(1,4-phenylene)bis[N,N,N',N',N'-hexamethyl-, tetrabromide (9CI) (CA INDEX NAME)



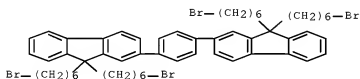
RN 550372-30-0 HCAPLUS

CN 9H-Fluorene, 2,2'-(1,4-phenylene)bis[9,9-bis(4-bromobutyl)- (CA INDEX NAME)



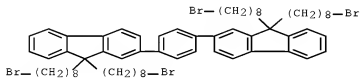
RN 550372-31-1 HCAPLUS

CN 9H-Fluorene, 2,2'-(1,4-phenylene)bis[9,9-bis(6-bromohexyl)- (CA INDEX NAME)



RN 550372-32-2 HCAPLUS

CN 9H-Fluorene, 2,2'-(1,4-phenylene)bis[9,9-bis(8-bromooctyl)- (CA INDEX NAME)



CC 6-2 (General Biochemistry)

IT 550372-33-3P 550372-34-4P 550372-35-5P

550372-36-6P

(effect of Chromophore-Charge Distance on Energy Transfer

Properties of Water-Soluble Conjugated Oligomers)

IT 3257-49-6P 438201-29-7P 550372-25-3P 550372-26-4P 550372-27-5P

550372-28-6P 550372-29-7P 550372-30-6P

550372-31-1P 550372-32-2P

(effect of Chromophore-Charge Distance on Energy Transfer
Properties of Water-Soluble Conjugated Oligomers)REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 17 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:865197 HCAPLUS Full-text

DOCUMENT NUMBER: 138:195486

TITLE: Synthesis and characterization of novel
conjugated light-emitting polymersAUTHOR(S): Liu, Michelle S.; Jiang, Xuezhong; Herguth, Petra;
Jen, Alex K.-Y.CORPORATE SOURCE: Department of Materials Science and Engineering,
University of Washington, Seattle, WA, 98195-2120,
USASOURCE: Materials Research Society Symposium Proceedings (
2002), 725 (Organic and Polymeric Materials
and Devices--Optical, Electrical and
Optoelectronic Properties), 3-11
CODEN: MRSPDH; ISSN: 0272-9172

PUBLISHER: Materials Research Society

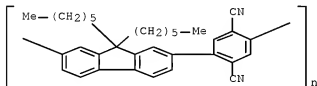
DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 14 Nov 2002

AB Novel fluorene-based conjugated light-emitting polymers were designed and
synthesized. By varying the compns. of the polymer backbone, the charge-
injecting and -transporting properties of the polymers were significantly
improved. The light-emitting diodes (LEDs) using these polymers as the
emissive layers exhibited low turn-on voltage, a high external quantum
efficiency, and high brightness due to balanced electron and hole conductivityIT 498558-30-8P
(synthesis and characterization of novel conjugated
light-emitting polymers for LEDs)

RN 498558-30-8 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) (2,5-dicyano-1,4-phenylene)]
(9CI) (CA INDEX NAME)CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 35, 36, 72, 76

ST LED conjugated polymer; HOMO conjugated
polymer LED; LUMO conjugated polymer LED;
UV spectra conjugated polymer LED; band gap
conjugated polymer LED; current voltage
conjugated polymer LED; electroluminescence
conjugated polymer LED; luminescence

conjugated polymer LED

IT Polymers, properties
(conjugated; synthesis and characterization of novel
conjugated light-emitting polymers)

IT Luminescent substances
(electroluminescent, polymers; synthesis and characterization of
novel conjugated light-emitting polymers)

IT Band gap
(optical; synthesis and characterization of novel
conjugated light-emitting polymers with)

IT Electroluminescent devices
(synthesis and characterization of novel conjugated
light-emitting polymers for)

IT HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Luminescence, electroluminescence
UV and visible spectra
(synthesis and characterization of novel conjugated
light-emitting polymers with)

IT 126213-51-2, Pedot 269078-60-6
(synthesis and characterization of novel conjugated
light-emitting polymers for LEDs)

IT 123863-98-9, Poly(9,9-dihexylfluorene)
(synthesis and characterization of novel conjugated
light-emitting polymers for LEDs)

IT 498558-30-3P 498558-31-9P 498558-32-0P 498558-33-1P
498558-34-2P
(synthesis and characterization of novel conjugated
light-emitting polymers for LEDs)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 18 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:786149 HCAPLUS Full-text

DOCUMENT NUMBER: 138:90170

TITLE: Synthesis and characterization of a novel
conjugated polymer containing
PPV oligomer and fluorene

AUTHOR(S): Lu, Su; Fan, Qu-Li; Xiao, Yang; Chua, Soo-Jin;
Huang, Wei

CORPORATE SOURCE: Institute of Materials Research and Engineering
(IMRE), National University of Singapore,
Singapore, 117602, Singapore

SOURCE: Thin Solid Films (2002), 417(1-2),
215-220
CODEN: THSFAP; ISSN: 0040-6090

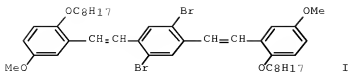
PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered SIN: 15 Oct 2002

GI



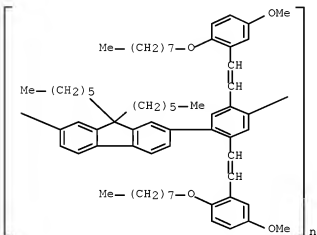
AB A conjugated polymer containing fluorene and oligo-PPV units which are alternately arranged in the backbone was synthesized by using Suzuki coupling reaction of diene I with 9,9-dihexylfluorene- 2,7-bis(trimethylene boronate). The chemical structure of the polymer was characterized by ¹H-NMR and FT-IR. The polymer shows good solubility in CHCl₃, THF and CH₂Cl₂ etc. TGA revealed good thermal stability of the polymer. Optical properties were characterized by using UV-visible and photoluminescence spectroscopies, indicating blue emission of the polymer.

IT 484653-91-0P

(synthesis and characterization of conjugated polymer containing PPV-type side chains and fluorene units)

RN 484653-91-0 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-[5-methoxy-2-(octyloxy)phenyl]ethenyl]-1,4-phenylene]] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73

IT Polymerization

(Suzuki reaction-; synthesis and characterization of conjugated polymer containing PPV-type side chains and fluorene units)

IT Luminescent substances

(photo-; synthesis and characterization of conjugated polymer containing PPV-type side chains and fluorene units)

IT Suzuki coupling reaction

(polymerization-; synthesis and characterization of conjugated polymer containing PPV-type side chains and fluorene units)

IT Heat-resistant materials

(synthesis and characterization of conjugated

polymer containing PPV-type side chains and fluorene units)

IT 122-52-1, Triethyl phosphite 150-76-5, 4-Methoxyphenol 1074-24-4,
2,5-Dibromo-p-xylene
(monomer precursor; synthesis and characterization of
conjugated polymer containing PPV-type side chains
and fluorene units)

IT 672-13-9P 4845-68-5P 56403-28-2P, 1,4-Bis(chloromethyl)-2,5-
dibromobenzene 395059-21-9P, 2,5-Dibromo-1,4-benzenedimethanol
403507-39-1P 484653-88-5P
(monomer precursor; synthesis and characterization of
conjugated polymer containing PPV-type side chains
and fluorene units)

IT 484653-89-6P
(monomer; synthesis and characterization of conjugated
polymer containing PPV-type side chains and fluorene units)

IT 484653-90-9P 484653-91-0P
(synthesis and characterization of conjugated
polymer containing PPV-type side chains and fluorene units)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 19 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:359891 HCAPLUS Full-text

DOCUMENT NUMBER: 136:377204

TITLE: Fluorine-containing conjugated
polymer and electroluminescent device

INVENTOR(S): Kameshima, Hisamitsu; Endo, Takeshi; Nemoto,
Hisakatsu

PATENT ASSIGNEE(S): Toppan Printing Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002138132	A	20020514	JP 2000-334256	20001101
			<--	
JP 3956608	B2	20070808		
PRIORITY APPLN. INFO.:			JP 2000-334256	20001101
			<--	

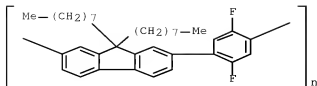
ED Entered STN: 14 May 2002

AB The F-containing conjugated polymer, preferably involving p-C6H4 unit, 1,4-naphthalene unit, thiophene unit, and fluorene unit, is used as an active layer in an electroluminescent device. The electroluminescent device, preferably a display device, shows no spectral change under heat.

IT 371789-84-3P
(fluorine-containing conjugated polymer for
electroluminescent device without spectral change under heat)

RN 371789-84-3 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)(2,5-difluoro-1,4-phenylene)]
(9CI) (CA INDEX NAME)



- IC ICM C08G061-00
ICS H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74
ST fluorine substituted conjugated polymer
electroluminescent device; spectral change heat electroluminescent device polymer
IT Polymers, uses
(block; fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT Fluoropolymers, uses
Polymers, uses
(conjugated; fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT Electroluminescent devices
(fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT 371789-81-0P 371789-82-1P 371789-84-3P 372194-59-7P
(fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT 196207-58-6P
(for fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT 111-83-1, 1-Bromooctane
(for fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT 86-73-7, Fluorene 7726-95-6, Bromine, reactions
(for monomer; for fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)
IT 123863-99-0P, 9,9-Diethylfluorene 198964-46-4P, 2,7-Dibromo-9,9-diethylfluorene
(intermediate for monomer; for fluorine-containing conjugated polymer for electroluminescent device without spectral change under heat)

L20 ANSWER 20 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:350724 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 137:79318

TITLE: Blue-Light-Emitting Cationic Water-Soluble Polyfluorene Derivatives with Tunable Quaternization Degree

AUTHOR(S): Liu, Bin; Yu, Wang-Lin; Lai, Yee-Hing; Huang, Wei

CORPORATE SOURCE: Institute of Materials Research and Engineering, Singapore, 117602, Singapore

SOURCE: Macromolecules 35(13), 4975-4982

CODEN: MAMOBX; ISSN: 0024-9297

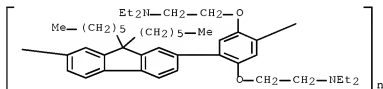
PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 12 May 2002

AB The design, synthesis and characterization of novel blue emission cationic water-soluble conjugated polymers based on the polyfluorene (PF) derivs. with amino-terminal groups are described. Water solubility was realized through quaternization of the amino group, which permits a control of the cationic degree, which in turn det. the solubility of the polymers in organic solvents and water. Better solubility in polar solvents was accompanied by a spectral blue shift for polymers with a higher quaternization degree. In the presence of a trace amount of some weak organic acids, the neutral polymer also showed a high solubility in water. Instead of forming a quaternized salt, the ¹H NMR spectra indicated that only electrostatic interaction existed between the acid and the amino-terminal groups, which increased the affinity of the polymers with those polar solvents. In addition to the special solubility, good thermal stability as well as the intense fluorescence both in solns. and as films endows this series of materials with the status of most attractive candidates as the transporting/emitting layer in multilayer device fabrication.

IT 439938-43-9P
 (synthesis and properties of)

RN 439938-43-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-(diethylamino)ethoxy]-1,4-phenylene]] (9CI) (CA INDEX NAME)



IT 439938-46-2P
 (synthesis and properties of)

RN 439938-46-2 HCAPLUS

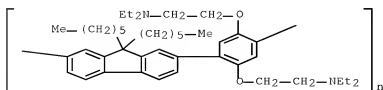
CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-(diethylamino)ethoxy]-1,4-phenylene]], compd. with bromoethane (9CI)
 (CA INDEX NAME)

CM 1

CRN 439938-43-9

CMF (C43 H62 N2 O2)_n

CCI PMS



CM 2

CRN 74-96-4

CMF C2 H5 Br

Br-CH₂-CH₃

CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36, 73

IT UV absorption
 (UV-visible; of cationic water-soluble conjugated
 polymers based on polyfluorene derivs.)

IT Polyelectrolytes
 (cationic; synthesis and properties of cationic water-soluble
 conjugated polymers)

IT Polymers, preparation
 (conjugated, fluorene-containing; synthesis and properties
 of)

IT Cyclic voltammetry
 Luminescence
 Oxidation potential
 Reduction potential
 Solubility
 Thermal stability
 (of cationic water-soluble conjugated polymers
 based on polyfluorene derivs.)

IT Solvent effect
 (on properties of cationic water-soluble conjugated
 polymers based on polyfluorene derivs.)

IT Acids, uses
 (organic; effect on properties of cationic water-soluble
 conjugated polymers based on polyfluorene
 derivs.)

IT Quaternization
 (synthesis and properties of cationic water-soluble conjugated
 polymers through)

IT 439938-40-6P 439938-43-9P
 (synthesis and properties of)

IT 439938-44-0P 439938-46-2P
 (synthesis and properties of)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 21 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2002:299569 HCAPLUS Full-text
 DOCUMENT NUMBER: 137:263633
 TITLE: New family of polyfluorene copolymers for light
 emitting devices
 AUTHOR(S): Holmes, Andrew B.; Rees, Ian; Sano, Takeshi;
 Fischmeister, Cedric; Frey, J.; Hennecke, Ulrich;
 Tuan, Chi-Shen; Chuah, Beng Sim; Ma, Yuguang;
 Martin, Rainer E.; Li, Jian; Feeder, Neil; Bond,

Andrew; Cacialli, Franco; Lim, Shuang; Friend, Richard

CORPORATE SOURCE: Melville Laboratory for Polymer Synthesis, Department of Chemistry, University of Cambridge, Cambridge, CB2 3RA, UK

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2002), 4464(Organic Light-Emitting Materials and Devices V), 42-48
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 22 Apr 2002

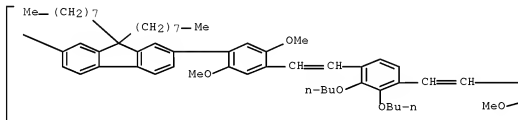
AB Addnl. routes were developed for the synthesis of 1,4- bishalomethylbenzene derivs., e.g., 2,3-dibutoxy-1,4- bis(bromomethyl)benzene (I), for Gilch dehydrohalogenation polycondensation. Gilch dehydrohalogenation of I gave a highly fluorescent conjugated polymer, i.e., poly(2,3-dibutoxy-1,4-phenylenevinylene), with a remarkably blue-shifted emission maximum compared with the corresponding family of poly(2,5-dialkoxy-1,4-phenylenevinylene)s. The polymer was thought to derive its high PL solid state fluorescence efficiency from the sterically twisted backbone and devices carrying this polymer were evaluated. A 4,4'-dibromodistyrylbenzene derivative carrying the structural feature of a 2,3-dibutoxy substitution pattern on the central ring was prepared. Polymerization with a 9,9-dialkyl-fluorene-2,7- diboronate ester gave a conjugated polymer that showed a good green emission maximum in an electroluminescent device.

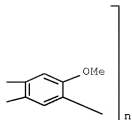
IT 462632-69-5P
(preparation and luminance and current characteristics of)

RN 462632-69-5 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)(2,5-dimethoxy-1,4-phenylene)-1,2-ethenediyl(2,3-dibutoxy-1,4-phenylene)-1,2-ethenediyl(2,5-dimethoxy-1,4-phenylene)] (9CI) (CA INDEX NAME)

PAGE 1-A





CC 37-3 (Plastics Manufacture and Processing)
 ST conjugated polymer light emitting diode;
 polyphenylenevinylene electroluminescence photoluminescence; fluorene
 diboronate ester dibromostyrylbenzene deriv copolymer
 IT Polymers, preparation
 (conjugated; preparation and blue-shifted photoluminescent and
 electroluminescent emission of)
 IT Electroluminescent devices
 (preparation and luminance and current characteristics of fluorene
 group-containing conjugated polymer for)
 IT 208264-12-4P, 2,3-Dibutoxy-1,4-bis(bromomethyl)benzene
 (monomer; for synthesis of conjugated polymer
 by Gilch dehydrohalogenation polycondensation)
 IT 459165-89-0P 462632-69-5P
 (preparation and luminance and current characteristics of)
 REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 22 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:265967 HCAPLUS Full-text

DOCUMENT NUMBER: 137:47561

TITLE: Energy transfer in mixtures of water-soluble
 oligomers: Effect of charge, aggregation, and
 surfactant complexation

AUTHOR(S): Stork, Martin; Gaylord, Brent S.; Heeger, Alan J.;
 Bazan, Guillermo C.

CORPORATE SOURCE: Departments of Chemistry and Materials, University
 of California, Santa Barbara, CA, 93106, USA

SOURCE: Advanced Materials (Weinheim, Germany) (

2002), 14(5), 361-366

CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Apr 2002

AB Water soluble conjugated oligomers were prepared, including 1,4-bis[9',9'-
 bis[6'''-(N,N,N-trimethylammonium)hexyl]-2'- fluorenyl]benzene tetraiodide (1)
 and 1,4-bis[7'-(9'',9'''-bis[6'''-(N,N,N-trimethylammonium)hexyl]-2''-
 fluorenyl)-9',9'-bis[6'''-(N,N,N-trimethylammonium) hexyl]-2'-
 fluorenyl]benzene octaoidide (2). Energy transfer processes between oligomers
 1 and 2 and 1,4-bis[4'-(2'',4'''- bis(butoxysulfonate)styryl]styryl]-2-
 (butoxysulfonate)-5- methoxybenzene (3) were studied. Poly[9,9-bis[6'''-(N,N,N-
 trimethylammonium)hexyl]fluorene-phenylene] (4) was also prepared and energy
 transfer was studied and compared with the oligomers in terms of structure
 effects. Addition of sodium dodecyl sulfate (SDS) to 1, 2, and 4 caused a

broadening of the absorption spectra and a decrease in the optical d. The optical absorption spectrum of 3 in water overlaps with the emission spectra of 1, 2, and 4, indicative of efficient Forster energy transfer between the mols. Polymer 4 exhibits an absorption maximum at 369 nm and the photoluminescence spectrum of 4 in water is broader than the spectra of 1 and 2 and is centered at 417 nm. Extension in repeat units from 2 to 4 therefore does not shift the absorption and photoluminescence spectra significantly. Fluorescence quenching by the oligomers is highly efficient and shows a dependence in chromophore concentration and aggregation of the chromophores in water.

IT 438201-41-3P

(Poly[9,9-bis[6'-(N,N,N-trimethylammonium)hexyl]fluorene-phenylene]; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)

RN 438201-41-3 HCAPLUS

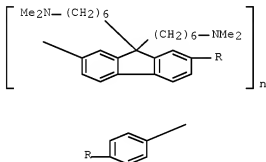
CN Poly[[9,9-bis[6-(dimethylamino)hexyl]-9H-fluorene-2,7-diyl]-1,4-phenylene], compd. with iodomethane (9CI) (CA INDEX NAME)

CM 1

CRN 438201-39-9

CMF (C35 H46 N2)_n

CCI PMS



CM 2

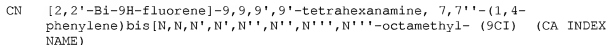
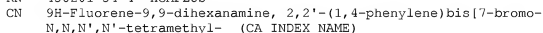
CRN 74-88-4

CMF C H3 I

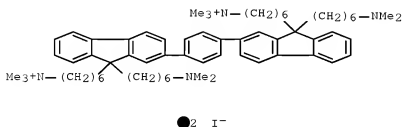
H3C—I

IT 438201-31-1P 438201-34-4P, 1,4-Bis[7'-bromo-9',9'-bis[6'''-(N,N-dimethylamino)hexyl]-2'-fluorenyl]benzene
438201-36-6P, 1,4-Bis[7'-[9'',9'''-bis[6'''-(N,N-dimethylamino)hexyl]-2'-fluorenyl]-9',9'-bis[6'''-(N,N-dimethylamino)hexyl]-2'-fluorenyl]benzene
(intermediate; preparation of water-soluble methylammonium-hexylfluorene

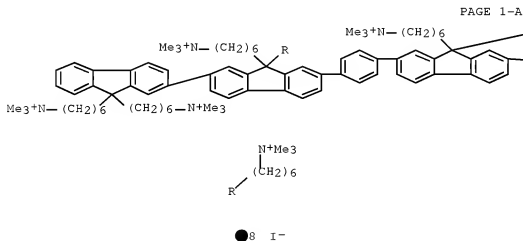
CN 9H-Fluorene-9,9-dihexanamine, 2,2'-(1,4-phenylene)bis[N,N,N',N'-tetramethyl- (CA INDEX NAME)

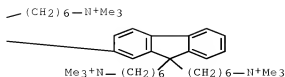


- IT 438201-32-2P 438201-37-7P, 1,4-Bis(7'-(9'',9'''-bis(6'''-(N,N,N-trimethylammonium)hexyl)-2'''-fluorenyl)-9',9'-bis[6'''-(N,N,N-trimethylammonium)hexyl]-2'-fluorenyl)benzene octaiodide (oligomer; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)
- RN 438201-32-2 HCAPLUS
- CN 9H-Fluorene-9-hexanaminium, 2,2'-(1,4-phenylene)bis[9-[6-(dimethylamino)hexyl]-N,N,N-trimethyl-, diiodide (9CI) (CA INDEX NAME)

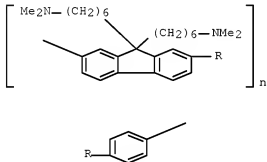


- RN 438201-37-7 HCAPLUS
- CN [2,2'-Bi-9H-fluorene]-9,9,9',9'-tetrahexanaminium, 7,7'-(1,4-phenylene)bis[N,N,N,N',N',N',N'',N'',N''',N''',N'''-dodecamethyl-, octaiodide (9CI) (CA INDEX NAME)





- IT 438201-39-9P, 2,7-Dibromo-9,9-bis[6'-(N,N-dimethylamino)hexyl]fluorene-1,4-phenyldiboronic acid copolymer, SRU (preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)
- RN 438201-39-9 HCAPLUS
- CN Poly[[9,9-bis[6-(dimethylamino)hexyl]-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)



- CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 25, 36, 74
- ST methylammonium fluorenylbenzene iodide conjugated oligomer prep
fluorescence; butoxysulfonatestyryl methoxybenzene polymer energy transfer methylammonium chromophore; fluorescence quenching efficiency water soluble conjugated polymer; sodium dodecyl sulfate surfactant effect fluorescence conjugated polymer
- IT Polymers, preparation
(conjugated, oligomeric; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)
- IT 438201-41-3P
(Poly[9,9-bis[6'-(N,N,N-trimethylammonium)hexyl]fluorene-phenylene]; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)
- IT 438201-29-7P, 2-Bromo-9,9-bis(6'-bromohexyl)fluorene 438201-30-0P, 2-Bromo-9,9-bis[6'-(N,N-dimethylamino)hexyl]fluorene 438201-31-1P 438201-33-3P, 2,7-Dibromo-9,9-bis[6'-(N,N-dimethylamino)hexyl]fluorene 438201-34-4P, 1,4-Bis[7'-bromo-9',9'-bis[6'-(N,N-dimethylamino)hexyl]-2'-fluorenyl]benzene 438201-35-5P, 2-[9',9'-Bis[6'-(N,N-

dimethylamino)hexyl]-2'-fluorenyl]-4,4,5,5-tetramethyl-1,3,2-dioxaborolane 438201-36-6P, 1,4-Bis[7'-(9'',9''-bis[6'''-(N,N-dimethylamino)hexyl]-2''-fluorenyl)-9',9'-bis[6'''-(N,N-dimethylamino)hexyl]-2'-fluorenyl]benzene
(intermediate; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)

IT 438201-32-2P 438201-37-7P, 1,4-Bis[7'-(9'',9''-bis[6'''-(N,N,N-trimethylammonium)hexyl]-2''-fluorenyl)-9',9'-bis[6'''-(N,N,N-trimethylammonium)hexyl]-2'-fluorenyl]benzene octaiodide
(oligomer; preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)

IT 438201-38-8P, 2,7-Dibromo-9,9-bis[6'-(N,N-dimethylamino)hexyl]fluorene-1,4-phenyldiboronic acid copolymer 438201-39-9P, 2,7-Dibromo-9,9-bis[6'-(N,N-dimethylamino)hexyl]fluorene-1,4-phenyldiboronic acid copolymer, SRU
(preparation of water-soluble methylammonium-hexylfluorene benzene oligomers and polymers and effect of charge and aggregation and surfactant complexation on energy transfer in solution)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 23 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:229803 HCAPLUS Full-text

DOCUMENT NUMBER: 136:402467

TITLE: Effect of Cyano Substituents on Electron Affinity and Electron-Transporting Properties of Conjugated Polymers

AUTHOR(S): Liu, Michelle S.; Jiang, Xuezhong; Liu, Sen; Herguth, Petra; Jen, Alex K. Y.

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA

SOURCE: Macromolecules (2002), 35(9), 3532-3538
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 27 Mar 2002

AB A series of cyano-containing distyrylbenzenes was synthesized as the model compds. to systematically study the effect of cyano substituents on the redox behaviors of conjugated mols. By introducing the electron-withdrawing functional groups (cyano and dicyanovinyl) onto the phenylene ring, both electron affinity and electrochem. stability of the resulting distyrylbenzenes are greatly enhanced. The results enabled us to design and synthesize a new class of highly electron affinitive, fluorene-based copolymers with these cyano-containing chromophores as comonomers. The effects of acceptor strength and side chain on electron-transporting properties of these polymers were also investigated. By properly adjusting copolymer compns., a combined high electron affinity and transport was achieved in a statistic copolymer, poly(fluorenebenzothiadiazole-cyanophenylenevinylene) (PFB-CNPV). An external quantum efficiency up to 0.88% and brightness as high as 4730 cd/m² were achieved in a double-layer light-emitting diode (LED) using PFB-CNPV as the emitting layer.

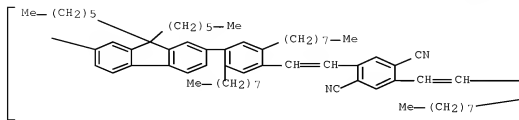
IT 429658-76-4P
(preparation and properties and LED application of)

RN 429658-76-4 HCAPLUS

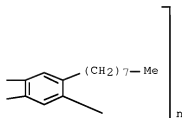
CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)(2,5-dioctyl-1,4-phenylene)-1,2-

ethenediyl(2,5-dicyano-1,4-phenylene)-1,2-ethenediyl(2,5-dioctyl-1,4-phenylene)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



- CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 73
- ST cyano conjugated polymer prepn electron property;
 fluorenebenzothiadiazole cyanophenylenevinylene polymer prepn LED
- IT Glass transition temperature
 HOMO (molecular orbital)
 LUMO (molecular orbital)
 Luminescence
 Luminescence, electroluminescence
 (of cyano-containing conjugated polymers)
- IT Oxidation potential
 Reduction potential
 (of distyrylbenzene model compds. for cyano-containing
 conjugated polymers)
- IT Electroluminescent devices
 (properties of LED with cyano-containing conjugated
 polymer as emitting layer)
- IT 7440-22-4, Silver, properties 7440-70-2, Calcium, properties
 50926-11-9, ITO
 (performance of LED from cyano-containing conjugated
 polymers and)
- IT 109-77-3DP, Malononitrile, reaction products with
 dibromoterephthalaldehyde-dihexylfluorene-bis(ethylenyl boronate)
 copolymer 429658-75-3DP, thermally converted 429658-76-4P
 429658-77-5P 429658-78-6P 429658-79-7DP, 2,5-
 Dibromoterephthalaldehyde-9,9-dihexylfluorene-2,7-bis(ethylenyl

boronate) copolymer, reaction products with malononitrile
429658-80-0DP, reaction products with malononitrile
(preparation and properties and LED application of)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 24 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:229663 HCAPLUS Full-text

DOCUMENT NUMBER: 137:20672

TITLE: New electron-accepting π -conjugated
polyquinoxalines with fluorene unit

AUTHOR(S): Jung, Sung-Hyun; Suh, Dong Hack; Cho, Hyun-Nam

CORPORATE SOURCE: Electronic Materials Devices Res. Center, KIST,
Seoul, 130-650, S. Korea

SOURCE: Polymer Preprints (American Chemical Society,
Division of Polymer Chemistry) (2002),
43(1), 91-92

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 27 Mar 2002

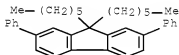
AB The polyquinoxaline-fluorene (PFQx) polymers were prepared by condensation of
2,7-bis(phenyloxyacetyl)-9,9'-di-n-hexylfluorene and 2,7-bis(4-benzil)-9,9'-
di-n-hexylfluorene with 3,3'-diaminobenzidine in a mixture of m-cresol and
xylene, leading to PFQx I and PFQx II. The onset temperature of thermal
decomposition of the PFQx under N was 400°. The PFQx I showed blue emission
with photoluminescence (PL) maximum at 447 nm and absorption maximum at 407
nm. The PFQx II showed a strong absorption band of the π - π^* transition of the
 π -conjugated segment around 397 nm with shoulder at 345 nm. The PL spectrum
of PFQx II in solution exhibited a maximum emission peak at 468 nm.

IT 419568-23-3P, 2,7-Diphenyl-9,9'-di-n-hexylfluorene
435332-93-7P, 2,7-Bis(4-phenylacetylphenyl)-9,9'-di-n-
hexylfluorene

(intermediate; preparation and absorption band and photoluminescence of
electron-accepting π -conjugated hexylfluorene-polyquinoxalines)

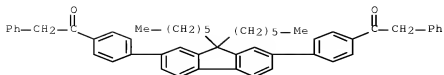
RN 419568-23-3 HCAPLUS

CN 9H-Fluorene, 9,9-dihexyl-2,7-diphenyl- (CA INDEX NAME)

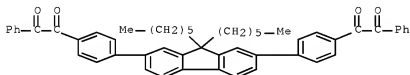


RN 435332-93-7 HCAPLUS

CN Ethanone, 1,1'-[[(9,9-dihexyl-9H-fluorene-2,7-diyl)di-4,1-
phenylene]bis[2-phenyl- (9CI) (CA INDEX NAME)



IT 435332-94-8P, 2,7-Bis(4-benzyl)-9,9'-di-n-hexylfluorene
 (monomer; preparation and absorption band and photoluminescence of
 electron-accepting π -conjugated hexylfluorene-polyquinoxalines)
 RN 435332-94-8 HCAPLUS
 CN Ethanedione, 1,1'-[(9,9-dihexyl-9H-fluorene-2,7-diyl)di-4,1-
 phenylene]bis[2-phenyl- (9CI) (CA INDEX NAME)

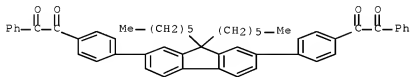


IT 435332-97-1P, 2,7-Bis(4-benzil)-9,9'-di-n-hexylfluorene-3,3'-
 diaminobenzidine copolymer
 (preparation and absorption band and photoluminescence of
 electron-accepting π -conjugated hexylfluorene-polyquinoxalines)
 RN 435332-97-1 HCAPLUS
 CN Ethanedione, 1,1'-[(9,9-dihexyl-9H-fluorene-2,7-diyl)di-4,1-
 phenylene]bis[2-phenyl-, polymer with [1,1'-biphenyl]-3,3',4,4'-
 tetramine (9CI) (CA INDEX NAME)

CM 1

CRN 435332-94-8

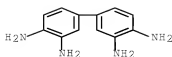
CMF C53 H50 O4



CM 2

CRN 91-95-2

CMF C12 H14 N4



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73

ST phenyloxoacetylhexylfluorene benzylhexylfluorene diaminobenzidine
copolymer prepn thermal stability; fluorene polyquinoxaline
conjugated polymer electron acceptor
photoluminescence

IT Polymers, preparation
(conjugated; preparation and absorption band and
photoluminescence of electron-accepting π -conjugated
hexylfluorene-polyquinoxalines)

IT 419568-22-3P, 2,7-Diphenyl-9,9'-di-n-hexylfluorene
435332-91-5P, 2,7-Bis(phenylethynyl)-9,9'-di-n-hexylfluorene
435332-93-7P, 2,7-Bis(4-phenacetylphenyl)-9,9'-di-n-
hexylfluorene
(intermediate; preparation and absorption band and photoluminescence of
electron-accepting π -conjugated hexylfluorene-polyquinoxalines)

IT 435332-92-6P 435332-94-8P, 2,7-Bis(4-benzil)-9,9'-di-n-
hexylfluorene
(monomer; preparation and absorption band and photoluminescence of
electron-accepting π -conjugated hexylfluorene-polyquinoxalines)

IT 435332-95-9P, 2,7-Bis(phenyloxoacetyl)-9,9'-di-n-hexylfluorene-3,3'-
diaminobenzidine copolymer 435332-96-0P, 2,7-Bis(phenyloxoacetyl)-
9,9'-di-n-hexylfluorene-3,3'-diaminobenzidine copolymer, SRU
435332-97-1P, 2,7-Bis(4-benzil)-9,9'-di-n-hexylfluorene-3,3'-
diaminobenzidine copolymer 435332-98-2P, 2,7-Bis(4-benzil)-9,9'-di-n-
hexylfluorene-3,3'-diaminobenzidine copolymer, SRU
(preparation and absorption band and photoluminescence of
electron-accepting π -conjugated hexylfluorene-polyquinoxalines)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 25 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:90643 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 136:142274

TITLE: Blue electroluminescent materials for polymer
light-emitting diodes

INVENTOR(S): Huang, Wei; Yu, Wang Lin; Pei, Jian; Chua, Soo Jin

PATENT ASSIGNEE(S): Agency For Science, Technology and Research,
Singapore

SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20020013451	A1	20020131	US 2001-841705	20010424

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10/532,649

US 6887972
SG 96550B2 20050503
A1 20030616

SG 2000-2255

20000424

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PRIORITY APPLN. INFO.:

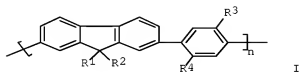
SG 2000-2255

A 20000424

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ED Entered SIN: 01 Feb 2002

GI



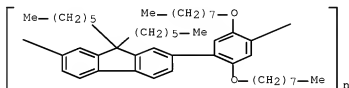
AB Polymeric material comprising alternating substituted 2,7-fluorene and 1,4-phenylene units are described by the formula I where R1-4 may be identical or different and are each selected from the group consisting of H, a (C1-C22) linear or branched alkyl, alkoxy or oligo(oxyethylene) group, a (C6-C30) cycloalkyl group, an unsubstituted or substituted alkyl group, unsubstituted or substituted aryl group; and $n \approx 3-5000$. Light-emitting diodes and full color displays incorporating the polymers are also described.

IT 393517-04-9P

(synthesis of blue electroluminescent materials for polymer light-emitting diodes using)

RN 393517-04-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) [2,5-bis(octyloxy)-1,4-phenylene]] (CA INDEX NAME)

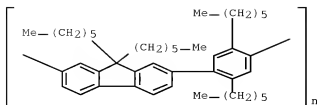


IT 397153-14-1P

(synthesis of blue electroluminescent materials for polymer light-emitting diodes using)

RN 297153-14-1 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl) (2,5-dihexyl-1,4-phenylene)] (CA INDEX NAME)



IC ICM H05B033-00
ICS B32B025-00
INCL 528397000
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 38, 74, 76
ST blue electroluminescent polymer light emitting diode; fluorene phenylene conjugated polymer synthesis
luminescence LED color display
IT Polymers, uses
(conjugated; blue electroluminescent materials for polymer light-emitting diodes)
IT 393517-04-9P 393517-05-0P
(synthesis of blue electroluminescent materials for polymer light-emitting diodes using)
IT 198964-46-4P, 2,7-Dibromo-9,9-Dioctylfluorene 297153-14-iP
(synthesis of blue electroluminescent materials for polymer light-emitting diodes using)
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 26 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:917712 HCAPLUS Full-text

DOCUMENT NUMBER: 136:263691

TITLE: Large and ultrafast third-order optical nonlinearity of novel copolymers containing fluorene and tetraphenyldiaminobiphenyl units in backbones

AUTHOR(S): Huang, Wentao; Wang, Shufeng; Yang, Hong; Gong, Qihuang; Zhan, Xiaowei; Liu, Yunqi; Zhu, Daoben
CORPORATE SOURCE: State Key Laboratory for Mesoscopic Physics and Department of Physics, Peking University, Beijing, 100871, Peop. Rep. China

SOURCE: Chemical Physics Letters (2001), 350(1,2), 99-105

CODEN: CHPLBC; ISSN: 0009-2614

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 Dec 2001

AB A femtosecond time-resolved optical Kerr gate method, using 115 fs laser pulses at 830 nm, was applied to study the third-order nonlinearity of copolymers containing fluorene and tetraphenyldiaminobiphenyl units in the backbone. The polymers are poly{(2,7-diethynyl-9,9-di-2-ethylhexylfluorene)-alt-[N,N'-diphenyl-N,N'-bis(4-phenyl)-1,1'-biphenyl-4,4'-diamine]} (TPD-PFE), poly{(9,9-di-2-ethylhexyl-2,7-fluorene)-alt-[N,N'-diphenyl-N,N'-bis(4-phenyl)-1,1'-biphenyl-4,4'-diamine]} (TPD-PF), and poly(2,7-diethynyl-9,9-di-

2-ethylhexylfluorene) (PFE). The non-resonant instantaneous second-order hyperpolarizability of TPD-PFE and TPD-PF is $4,5 \times 10^{-30}$ and 2.5×10^{-30} esu, resp. attributed to formation of strong charge transfer structures along the main chain.

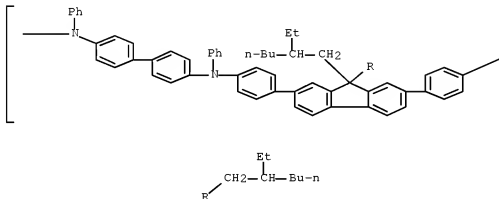
IT 344782-56-5P

(instantaneous second-order hyperpolarizability and third-order optical nonlinearity of polyacetylene-polyamines containing fluorene and tetraphenyldiaminobiphenyl units)

RN 344782-56-5 HCAPLUS

CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 73, 74

IT Polymers, properties

(conjugated; instantaneous second-order hyperpolarizability and third-order optical nonlinearity of polyacetylene-polyamines containing fluorene and tetraphenyldiaminobiphenyl units)

IT Polymer chains

(conjugation length; instantaneous second-order hyperpolarizability and third-order optical nonlinearity of

polyacetylene-polyamines containing fluorene and tetraphenyldiaminobiphenyl units)

IT 344782-51-0P, 2,7-Diethynyl-9,9-di-2-ethylhexylfluorene-N,N'-diphenyl-N,N'-bis(4-bromophenyl)-1,1'-biphenyl-4,4'-diamine copolymer

344782-53-2P 344782-55-4P, 9,9-Di-2-ethylhexylfluorene-2,7-bis(trimethylene boronate)-N,N'-diphenyl-N,N'-bis(4-bromophenyl)-1,1'-biphenyl-4,4'-diamine copolymer 344782-56-5P 344782-58-7P, 2,7-Dibromo-9,9-di-2-ethylhexylfluorene-2,7-diethynyl-9,9-di-2-ethylhexylfluorene copolymer 344782-59-8P, 2,7-Dibromo-9,9-di-2-ethylhexylfluorene-2,7-diethynyl-9,9-di-2-ethylhexylfluorene copolymer, SRU

(instantaneous second-order hyperpolarizability and third-order optical nonlinearity of polyacetylene-polyamines containing fluorene and tetraphenyldiaminobiphenyl units)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 27 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:662373 HCAPLUS Full-text

DOCUMENT NUMBER: 135:358315

TITLE: Total synthesis and emission properties of poly[(9,9-dihexylfluorene)-co-(N,N'-diphenyl-N,N'-di(p-butylphenyl)-1,4-phenylenediamine)]

AUTHOR(S): Raymond, Francois; Xiao, Steven S.; Nguyen, My T.

CORPORATE SOURCE: ADS American Dye Source Inc., Baie d'Urfe, QC, H9X 3T6, Can.

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(2), 587-588

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

ED Entered STN: 11 Sep 2001

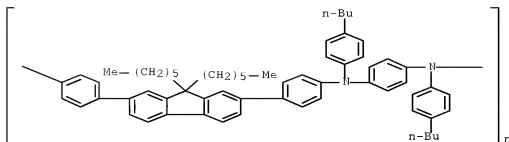
AB The synthesis of poly[(9,9-dihexylfluorene)-(N,N'-diphenyl-N,N'-di(p-butylphenyl)-1,4-phenylenediamine)] (PFA) was accomplished by Suzuki coupling reactions using a Pd catalyst system of Pd diacetate and triphenylphosphine. The preparation of the N,N'-di(p-butylphenyl)-1,4-phenylenediamine monomer was also carried out. The poly(N-4-butylphenyl)aniline (PA) was also prepared in good yield using Pd(OAc)₂/P(t-Bu)₃ as the catalyst; the polymer has low solubility in common organic solvents. The optical absorption and emission of the conducting polymers, PFA and PA and of poly(9,9-dihexylfluorene) were studied and compared as function of single and double chromophores.

IT 372200-91-4P

(preparation of monomers and Suzuki coupling polymerization and optical properties of poly[(hexylfluorene-N,N'-diphenyl-N,N'-di(p-butylphenyl)phenylenediamine)] and mono-chromophore polymers)

RN 372200-91-4 HCAPLUS

CN Poly[[(4-butylphenyl)imino]-1,4-phenylene[(4-butylphenyl)imino]-1,4-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73

IT Polymers, preparation

(conjugated, polyfluorene-phenylaniline; preparation of monomers and Suzuki coupling polymerization and optical properties of poly[(hexylfluorene-N,N'-diphenyl-N,N'-di(p-butylphenyl)phenylenediamine)] and mono-chromophore polymers)

IT 372200-90-3P 372200-91-4P 372200-92-5P 372200-93-6P,

N,N'-di(p-butylphenyl)-1,4-phenylenediamine-1,4-dibromobenzene copolymer, SRU

(preparation of monomers and Suzuki coupling polymerization and optical properties of poly[(hexylfluorene-N,N'-diphenyl-N,N'-di(p-butylphenyl)phenylenediamine)] and mono-chromophore polymers)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 28 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:643084 HCAPLUS Full-text

DOCUMENT NUMBER: 135:358265

TITLE: Synthesis and properties of fluorene-based fluorinated polymers

AUTHOR(S): Kameshima, Hisamitsu; Nemoto, Nobukatsu; Endo, Takeshi

CORPORATE SOURCE: Materials Technology Research Laboratory, Technical Research Institute, Toppan Printing Co., Ltd., Saitama, 345-8508, Japan

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(18), 3143-3150

CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 02 Sep 2001

AB Fluorene-based polymers containing various fluorinated benzene (fluorobenzene, p-difluoro benzene, and tetrafluoro benzene) moieties were synthesized. In addition, perfluorooctylation of poly-[(9,9-dioctyl fluorene-2,7-diyl)-co-(fluorene-2,7-diyl)] was carried out to afford fluorene-based polymers with perfluorooctyl moiety at the 9-position on the fluorene ring. To evaluate the effect of fluorine moiety, polymers containing non fluorinated benzene moieties and non-fluorinated octyl groups were synthesized. The photoluminescence measurements indicated that all these polymers exhibited blue emission in solution, but a polymer containing a perfluorooctyl group did not emit in the film state. Polymers containing various fluorinated benzene

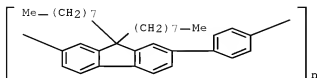
moieties showed higher fluorescence quantum yields and thermal stability than those containing non-fluorinated benzene.

IT 198964-62-4P 371789-84-3P 371789-85-4P

(fluorene-based fluorinated polymers)

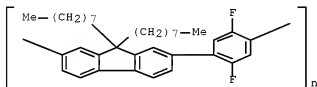
RN 198964-62-4 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



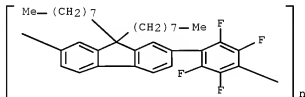
RN 371789-84-3 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)(2,5-difluoro-1,4-phenylene)] (9CI) (CA INDEX NAME)



RN 371789-85-4 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)(2,3,5,6-tetrafluoro-1,4-phenylene)] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73

IT Polymers, preparation
(conjugated; fluorene-based fluorinated polymers)

IT 507-63-1DP, Perfluorooctyl iodide, reaction products with fluorene-based polymer 195456-48-5P, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 198964-57-7P 198964-62-4P 198964-67-9DP, perfluorooctylated 198964-67-9P 198964-71-5DP, perfluorooctylated 198964-71-5P 198964-76-0P 371789-81-0P 371789-82-1P

371789-83-2P 371789-84-3P 371789-85-4P
372194-59-7P

(fluorene-based fluorinated polymers)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 29 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:474036 HCAPLUS Full-text

DOCUMENT NUMBER: 135:195890

TITLE: Self-Encapsulation of Poly-2,7-fluorenes in a
Dendrimer Matrix

AUTHOR(S): Marsitzky, Dirk; Vestberg, Robert; Blainey, Paul;
Tang, Beverly T.; Hawker, Craig J.; Carter,
Kenneth R.

CORPORATE SOURCE: IBM Almaden Research Center NSF Center for
Polymeric Interfaces and Macromolecular
Assemblies, San Jose, CA, 95120-6099, USA

SOURCE: Journal of the American Chemical Society (
2001), 123(29), 6965-6972
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 02 Jul 2001

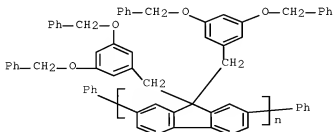
AB The synthesis and characterization of complex dendritic, rigid rod poly-2,7-fluorene homopolymers and copolymers via a macromonomer approach is reported. Several 2,7-dibromofluorene monomers containing benzyl ether dendrons (generations 1, 2, and 3) in the 9,9'-position of the fluorene ring were prepared and employed in condensation polymns. to yield both homopolymers and copolymers with diethylhexylfluorene. Fluorescence measurements of the materials reveal extensive conjugation along the polymer backbone. The determination of the solid-state PL spectra and quantum efficiencies showed that there is an apparent optimum size of the dendritic side groups with the [G-2]-derivs. showing high reactivity with associated site isolation of the conjugated chain. AFM anal. and DSC results confirmed that the hybrid polymers and copolymers did not show any sign of a microphase-separated morphol. First EL-results demonstrated that the homopolymers have higher turn-on voltages then the corresponding copolymers.

IT 357219-34-2P 357219-35-3P

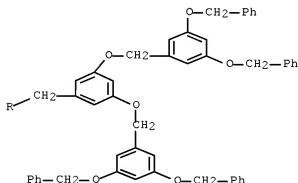
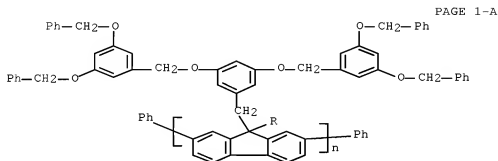
(self-encapsulation of poly-2,7-fluorenes in a dendrimer matrix)

RN 357219-34-2 HCAPLUS

CN Poly[9,9-bis[(3,5-bis(phenylmethoxy)phenyl)methyl]-9H-fluorene-2,7-diyl], α,ω -diphenyl- (9CI) (CA INDEX NAME)



RN 357219-35-3 HCAPLUS
 CN Poly[9,9-bis[[[3,5-bis[(phenylmethoxy)phenyl]methoxy]phenyl]meth
 hyl]-9H-fluorene-2,7-diyl], α,ω -diphenyl- (9CI) (CA INDEX
 NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36, 73, 76
 ST fluorene backbone conjugated polymer macromonomer
 synthesis dihydroxybenzyl oligomer dendron; optical thermal
 luminescence property dendrimer substituted polyfluorene
 electroluminescence diode
 IT Polymers, preparation
 (conjugated; self-encapsulation of poly-2,7-fluorenes in
 a dendrimer matrix)
 IT 108-86-1DP, Phenyl bromide, reaction products with dendritic
 oligoether-substituted poly-2,7-fluorenes 301323-58-0DP,
 phenyl-terminated 357219-31-9DP, phenyl-terminated 357219-33-1DP,
 phenyl-terminated 357219-34-2P 357219-35-3P
 357219-36-4DP, phenyl-terminated 357219-37-5DP, phenyl-terminated
 357219-38-6DP, phenyl-terminated 357219-40-0DP, phenyl-terminated
 357219-42-2P 357219-44-4P 357219-45-5P 357219-47-7P
 357219-48-8P

(self-encapsulation of poly-2,7-fluorenes in a dendrimer matrix)
 REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 30 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:233307 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:46552

TITLE: Large Femtosecond Third-Order Nonlinear Optical
 Response in a Novel Donor-Acceptor Copolymer
 Consisting of Ethynylfluorene and
 Tetraphenyldiaminobiphenyl Units

AUTHOR(S): Zhan, Xiaowei; Liu, Yunqi; Zhu, Daoben; Huang,
 Wentao; Gong, Qihuang

CORPORATE SOURCE: Center for Molecular Science Institute of
 Chemistry, Chinese Academy of Sciences, Beijing,
 100080, Peop. Rep. China

SOURCE: Chemistry of Materials (2001), 13(5),
 1540-1544

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 04 Apr 2001

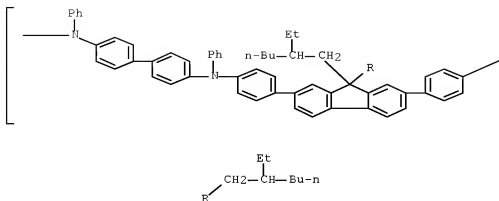
AB A donor-acceptor conjugated copolymer consisting of the electron-accepting moiety 2,7-diethynylfluorene and the electron-donating moiety tetraphenyldiaminobiphenyl (TPD), i.e., poly{(2,7-diethynyl-9,9-di-2-ethylhexylfluorene)-alt-co-[N,N'-diphenyl- N,N'-bis(4-phenyl)-1,1'-biphenyl-4,4'-diamine]} (TPD-PFE), and its analogs without the alkyne or TPD segments, namely, poly{(9,9-di-2-ethylhexyl-2,7-fluorene)-alt-co-[N,N'-diphenyl-N,N'-bis(4-phenyl)-1,1'-biphenyl-4,4'-diamine]} (TPD-PF) and poly(2,7-9,9-di-2-ethylhexylfluorenyleneethynylene) (PFE), were synthesized via Pd-catalyzed coupling reactions. The third-order nonlinear optical (NLO) properties of these polymers were characterized using a femtosecond time-resolved optical Kerr effect technique. The ultrafast second-order hyperpolarizability of TPD-PFE was estimated to be as large as 4.5×10^{-30} esu in the nonresonant region, larger than those of its counterparts. The electronic transitions of the fluorene-based polymers can be readily tuned by varying the nature of the co-units in the main chain, and the intrachain charge transfer between the electron-deficient and electron-excessive units can enhance the NLO properties of the polymers.

IT 344782-56-5P

(preparation and femtosecond third-order nonlinear optical response of donor-acceptor poly(ethynylfluorene-tetraphenyldiaminobiphenyl) and poly(ethynylfluorene))

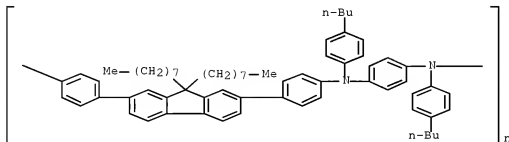
RN 344782-56-5 HCAPLUS

CN Poly[(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)-1,4-phenylene[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

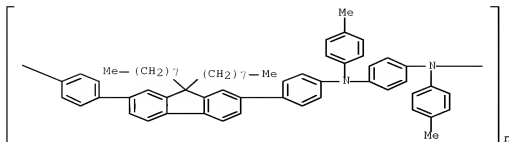


- CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73
- ST ethylhexylfluorene polyacetylene prepn third order nonlinear optical response; tetraphenyldiaminobiphenyl ethylhexylfluorene polyacetylene prepn hyperpolarizability; electronic transition conjugated polymer ethylhexylfluorene tetraphenyldiaminobiphenyl
- IT Polymers, preparation
(conjugated; preparation and femtosecond third-order nonlinear optical response of donor-acceptor poly(ethylhexylfluorene-tetraphenyldiaminobiphenyl) and poly(ethynylfluorene))
- IT Polymer chains
(conjugation length; preparation and femtosecond third-order nonlinear optical response of donor-acceptor poly(ethylhexylfluorene-tetraphenyldiaminobiphenyl) and poly(ethynylfluorene))
- IT 344782-51-0P 344782-53-2P 344782-55-4P 344782-56-5P
344782-58-7P 344782-59-8P
(preparation and femtosecond third-order nonlinear optical response of donor-acceptor poly(ethylhexylfluorene-tetraphenyldiaminobiphenyl) and poly(ethynylfluorene))
- REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2000:462253 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 134:116245
 TITLE: Developmental progress of electroluminescent polymeric materials and devices
 AUTHOR(S): Bernius, Mark T.; Inbasekaran, Michael; Woo, Edmund P.; Wu, Weishi W.; Wujkowski, Lisa
 CORPORATE SOURCE: Corporate Research Dev., Dow Chemical Co., Midland, MI, USA
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1999), 3797(Organic Light-Emitting Materials and Devices III), 129-137
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical Engineering
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English
 ED Entered STN: 10 Jul 2000
 AB A review, with 28 refs., on methods for preparation of fluorene polymers with tailored optical properties for use in light-emitting diodes (LED)s. Fluorene-containing polymers are prepared by coupling of 9,9-disubstituted, e.g., dioctyl, 2,7-bis-1,3,2-dioxaborolanylfluorene with a variety of aromatic dibromides, triphenylamines, stilbenes, bithiophenes, etc. The polymer backbone provides mech. and chemical robustness and the C-9 on fluorene provides a site for phys. property modifications without introducing significant torsional strain which would adversely affect conjugation. The optical and electronic properties of the polymer are tailored through selective incorporation of different aromatic units into the AB alternating structure. The polymers show emission in blue, green, red and other colors and can be incorporated to LEDs.
 IT 223569-28-6P 223569-29-7P
 (synthesis of fluorene polymers with tailored mech. and electronic properties for use in LEDs)
 RN 223569-28-6 HCAPLUS
 CN Poly[[(4-butylphenyl)imino]-1,4-phenylene[(4-butylphenyl)imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



RN 223569-29-7 HCAPLUS
 CN Poly[[(4-methylphenyl)imino]-1,4-phenylene[(4-methylphenyl)imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-0 (Chemistry of Synthetic High Polymers)
 ST review fluorene dialkyl substituted polymer prepn electroluminescence;
 conjugated polymer alkylfluorene strainless chain
 mech stability review; glass transition temp alkylfluorene
 triphenylamine alternating copolymer review; phenylene naphthalene
 alkylfluorene copolymer photoluminescence review; stilbene
 alkylfluorene polythiophene electroluminescent material review; light
 emitting diode alkylfluorene polymer review
 IT Polymer chains
 (conjugated; synthesis of fluorene polymers
 with tailored mech. and electronic properties for use in LEDs)
 IT Polymers, preparation
 (conjugated; synthesis of fluorene polymers
 with tailored mech. and electronic properties for use in LEDs)
 IT 95270-88-5P, Polyfluorene 123864-00-6P, Poly(9,9-dioctyl)fluorene
 210347-56-1P, 2,2'-Bithiophene-9,9-dioctylfluorene copolymer, SRU
 223569-28-6P 223569-29-7P 289625-34-9P,
 2,2'-Bithiophene-9,9-dioctylfluorene copolymer
 (synthesis of fluorene polymers with tailored mech. and electronic
 properties for use in LEDs)
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 32 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:405605 HCAPLUS Full-text

DOCUMENT NUMBER: 133:164431

TITLE: Light-Emitting Diodes from Fluorene-Based π -
 Conjugated Polymers

AUTHOR(S): Donat-Bouillud, Anne; Levesque, Isabelle; Tao, Ye;
 D'Iorio, Marie; Beaupre, Serge; Blondin, Pierre;
 Ranger, Maxime; Bouchard, Jimmy; Leclerc, Mario

CORPORATE SOURCE: Institute for Microstructural Sciences, National
 Research Council of Canada, Ottawa, ON, K1A 0R6,
 Can.

SOURCE: Chemistry of Materials (2000), 12(7),
 1931-1936

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 Jun 2000

AB The synthesis of fluorene-based π -conjugated polymers was carried out and the
 electroluminescent properties of the polymers were studied. The photo- and
 electroluminescence of poly(dioctylfluorene-phenylene)s and

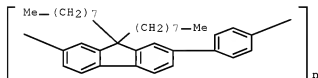
poly(dioctylfluorene-thiophene)s whose synthesis was recently published was also studied. The alternate incorporation of phenylene or thiophene moieties in fluorene-based π -conjugated polymers was used to effect tunability of electroluminescent properties. The spectral emission varies from blue to green or yellow, depending on the composition of the copolymers. To enhance the luminescence efficiency of polymer assemblies, hole injection and hole transport into the polymer were improved by insertion of an insulating buffer layer and the incorporation of efficient hole transport material in the polymer. The insertion of a charge injection layer such as LiF and a hole transport layer such as N,N'-diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine significantly improved the electroluminescence efficiency of a test diode from 4.5 to 125 cd/m².

IT 198964-62-4P 222857-68-3P

(preparation of poly(dioctylfluorene-thiophene)s with tunable electroluminescence and improved carrier transport for use in light-emitting diodes)

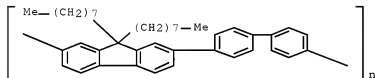
RN 198964-62-4 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



RN 222857-68-3 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 76

ST fluorene thiophene conjugated polymer prepn

luminescence tunability; carrier transport polyfluorene polythiophene

layer buffer layer; lithium fluoride charge injection polyfluorene

polythiophene; biphenyldiamine hole transport layer fluorene

polythiophene conjugated polymer

IT Polymers, preparation

(conjugated; preparation of poly(dioctylfluorene-thiophene)s with tunable electroluminescence and improved carrier transport for use in light-emitting diodes)

IT 198964-57-7P 198964-62-4P 210347-56-1P 222857-60-5P

222857-62-7P 222857-64-9P 222857-68-3P 222857-69-4P

287924-57-6P 287924-58-7P 287924-59-8P 287924-60-1P

287924-61-2P 287924-62-3P

(preparation of poly(dioctylfluorene-thiophene)s with tunable electroluminescence and improved carrier transport for use in light-emitting diodes)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 33 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:199532 HCAPLUS Full-text

DOCUMENT NUMBER: 133:18150

TITLE: Synthesis of a novel cationic water-soluble efficient blue photoluminescent conjugated polymer

AUTHOR(S): Liu, Bin; Lai, Yee-Hing; Yu, Wang-Lin; Huang, Wei

CORPORATE SOURCE: Dep. Chem., National University of Singapore, Singapore, 119260, Singapore

SOURCE: Chemical Communications (Cambridge) (2000), (7), 551-552

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

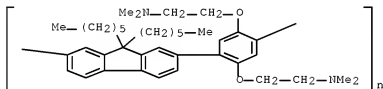
ED Entered STN: 29 Mar 2000

AB A novel cationic conjugated polymer, poly[(9,9-dihexyl-2,7-fluorene)-alt-co-(2,5-bis{3-[(N,N-dimethyl)-N-ethylammonium]-1-oxapropyl}-1,4-phenylene)] dibromide, which is water-soluble and emits bright blue fluorescence both in solns. and as films, is synthesized through Suzuki coupling reaction and a post-polymerization treatment.

IT 272446-48-7DP, reaction products with bromoethane (synthesis of cationic water-soluble efficient blue photoluminescent conjugated polymer)

RN 272446-48-7 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)[2,5-bis[2-(dimethylamino)ethoxy]-1,4-phenylene]] (9CI) (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)

ST conjugated polymer blue photoluminescent

IT 74-96-4DP, Bromoethane, reaction products with amino-containing

conjugated polymers 272446-47-6DP, reaction

products with bromoethane 272446-48-7DP, reaction products

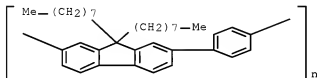
with bromoethane

(synthesis of cationic water-soluble efficient blue photoluminescent conjugated polymer)

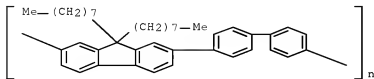
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 34 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:171548 HCAPLUS Full-text
 DOCUMENT NUMBER: 130:282433
 TITLE: Optical and electrical properties of
 fluorene-based π -conjugated
 polymers
 AUTHOR(S): Ranger, Maxime; Leclerc, Mario
 CORPORATE SOURCE: Departements de chimie, Universite de Montreal et
 Universite Laval, Centre de recherche de science
 et genie en macromolecules, Cite universitaire,
 QC, G1K 7P4, Can.
 SOURCE: Canadian Journal of Chemistry (1998),
 76(11), 1571-1577
 CODEN: CJCHAG; ISSN: 0008-4042
 PUBLISHER: National Research Council of Canada
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 16 Mar 1999
 AB Electroactive and photoactive copolymers derived from fluorenes have been
 prepared from palladium-catalyzed Suzuki couplings. For instance, poly((4,4'-
 biphenylene)-2,7-(9,9-dioctylfluorene)) and poly((2,5-thienylene)-2,7-(9,9-
 dioctylfluorene)) exhibit strong emission in the blue region (406 nm, ϕ_{fl} =
 0.72) and in the green region (496 nm, ϕ_{fl} = 0.49), resp. These fluorene-
 based π -conjugated polymers also show reversible electroactivity upon
 reduction and oxidation. The good elec. transport of both p-type and n-type
 charge carriers combined with excellent luminescent properties should lead to
 the development of efficient light-emitting devices.
 IT 198964-62-4P 222857-68-3P
 (optical and elec. properties of fluorene-based π -conjugated
 alternating copolymers containing thiophenediyl or phenylene linkages)
 RN 198964-62-4 HCAPLUS
 CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX
 NAME)



RN 222857-68-3 HCAPLUS
 CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)[1,1'-biphenyl]-4,4'-diyl]
 (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73, 76
 ST fluorene based alternating conjugated polymer elec
 optical property
 IT Polymers, preparation
 (conjugated; optical and elec. properties of
 fluorene-based π -conjugated alternating copolymers containing
 thiophenediyl or phenylene linkages)
 IT 198964-57-7P 198964-62-4P 210347-56-1P 222857-60-5P
 222857-62-7P 222857-64-9P 222857-68-3P 222857-69-4P
 (optical and elec. properties of fluorene-based π -conjugated
 alternating copolymers containing thiophenediyl or phenylene linkages)
 REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 35 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1998:459759 HCAPLUS Full-text
 DOCUMENT NUMBER: 129:123010
 TITLE: Process for preparing conjugated
 polymers
 INVENTOR(S): Inbasekaran, Michael; Wu, Weishi; Woo, Edmund P.
 PATENT ASSIGNEE(S): Dow Chemical Co., USA
 SOURCE: U.S., 9 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5777070	A	19980707	US 1997-956797	19971023
CA 2305137	A1	19990429	CA 1998-2305137	19980513
WO 9920675	A1	19990429	WO 1998-US9706	19980513
W: CA, CN, JP, KR, SG RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1025142	A1	20000809	EP 1998-923397	19980513
EP 1025142	B1	20030226		
R: DE, FR, GB, IT, NL, SE, FI				
JP 2001520289	T	20011030	JP 2000-517007	19980513
AT 233288	T	20030315	AT 1998-923397	19980513
TW 412544	B	20001121	TW 1998-87108092	19980525
PRIORITY APPLN. INFO.:				
			US 1997-956797	A 19971023
			WO 1998-US9706	W 19980513

ED Entered STN: 24 Jul 1998
 AB A process for preparing conjugated polymers comprises contacting (i) monomers
 having two reactive groups selected from boronic acid, C1-6 boronic acid
 ester, C1-6 borane, and combinations thereof, with aromatic dihalide-
 functional monomers or (ii) monomers having one reactive boronic acid, boronic
 acid ester, or borane group and one reactive halide-functional group, with

each other; (wherein the monomers are selected so that the polymerization reaction product of such has conjugated unsatd. internal groups) in a reaction mixture which contains: (a) an organic solvent in which the polymer forms at least a 1 percent solution; (b) an aqueous solution of an inorg. base having a pKa in the range of from 9 to 13, said solution having a concentration of at least 0.1N; (c) a catalytic amount of a palladium complex; and (d) at least 0.01 mol percent of a phase transfer catalyst, based on the number of moles of boronic acid, boric acid ester, and borane groups in the reaction mixture; under reaction conditions sufficient to form the corresponding conjugated polymer. A polymer was prepared from 2,7-dibromo-9,9-di-n-octylfluorene and 9,9-di-n-octylfluorene-2,7-di(ethyleneboronate) in a reaction mixture containing PhMe, aqueous sodium carbonate, Aliquat 336, and tetrakis(triphenylphosphine)palladium.

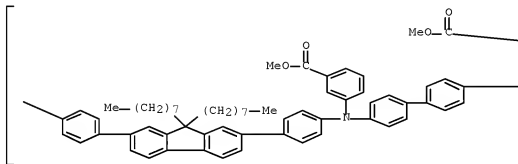
IT 210347-50-3P

(process for preparing conjugated polymers)

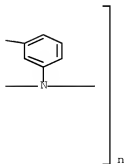
RN 210347-58-3 HCAPLUS

CN Poly[[[3-(methoxycarbonyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl][3-(methoxycarbonyl)phenyl]imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
 ST boronic acid monomer conjugated polymer; halide monomer conjugated polymer
 IT Phase transfer catalysts
 Polymerization catalysts
 (process for preparing conjugated polymers)
 IT Quaternary ammonium compounds, uses
 (tetraalkyl, halides, C4-30; process for preparing conjugated polymers)
 IT Quaternary ammonium compounds, uses
 (tri-C8-10-alkylmethyl, chlorides; process for preparing conjugated polymers)
 IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
 (process for preparing conjugated polymers)
 IT 195456-48-5P, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 210347-50-5P
 210347-51-6P 210347-52-7P 210347-53-8P 210347-54-9P
 210347-55-0P 210347-56-1P 210347-57-2P 210347-58-3P
 210347-60-7P 210347-61-8P
 (process for preparing conjugated polymers)
 IT 71-43-2, Benzene, uses 100-41-4, Ethylbenzene, uses 100-66-3,
 Anisole, uses 108-67-8, Mesitylene, uses 108-88-3, uses
 497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate
 1330-20-7, Xylene, uses
 (process for preparing conjugated polymers)
 REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L20 ANSWER 36 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:57752 HCAPLUS Full-text
 DOCUMENT NUMBER: 128:210277
 ORIGINAL REFERENCE NO.: 128:41505a, 41508a
 TITLE: Control of band gaps of conjugated
 polymers by copolymerization
 AUTHOR(S): Cho, H. N.; Kim, D. Y.; Kim, J. K.; Kim, C. Y.
 CORPORATE SOURCE: Polymer Materials Laboratory, Korea Institute of
 Science and Technology, Seoul, 130-650, S. Korea
 SOURCE: Synthetic Metals (1997), 91(1-3),
 293-296
 CODEN: SYMEDZ; ISSN: 0379-6779
 PUBLISHER: Elsevier Science S.A.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 31 Jan 1998

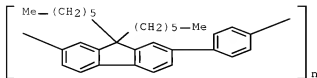
AB Dihexylfluorenes were coupled with a chemical unit such as vinylene, phenylene, vinylenephenylene or vinylenealkoxyphenylene to preserve conjugation in the alternating copolymers by employing the reactions of Heck, Suzuki and Wittig. All the copolymers display good photoluminescence (PL) and the PL spectra are broad to show vibronic structures as well as emission of the interchain excitons or excimers, except PDHFP which shows a sharp PL spectrum. The broad spectra become sharp on dilution in CHCl₃ to 10⁻⁵ mol l⁻¹ due to a diminishing effect of the interchain excitons or excimers. The electronic state of polydihexylfluorene with the PL emission peak at 420 nm is changed to a lower-energy state when a vinylene or vinylene-para-phenylene unit is coupled to the alkylfluorene unit. The decrease in the energy state is pronounced when the two alkoxy units are attached to the phenylene unit to show the PL emission peak at 510 nm. However, no change in the electronic energy state is observed when a phenylene, vinylene-meta-phenylene or glycol-capped vinylenephenylene unit is coupled with the dialkylfluorene unit.

IT 203927-65-9P

(control of band gaps of conjugated polymers by
copolymn.)

RN 203927-85-9 HCAPLUS

CN Poly[(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX
NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 36

ST band gap conjugated polymer copolymn

IT Polymers, properties

(co-; control of band gaps of conjugated polymers
by copolymn.)

IT Polymers, properties

(conjugated; control of band gaps of conjugated
polymers by copolymn.)

IT Band gap

Electronic state

Excimer

Exciton

Luminescence

Luminescent substances

(control of band gaps of conjugated polymers by
copolymn.)

IT 123863-98-9P 188547-06-0P 188547-07-1P 202129-93-9P

202129-98-4P 203927-82-6P 203927-85-9P 203927-96-2P

203927-99-5P

(control of band gaps of conjugated polymers by
copolymn.)

IT 623-27-8, 1,4-Benzenedicarboxaldehyde 623-27-8D,

1,4-Benzenedicarboxaldehyde, dialkoxy derivative 626-19-7,

1,3-Benzenedicarboxaldehyde

(control of band gaps of conjugated polymers by
copolymn.)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L20 ANSWER 37 OF 37 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:740774 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 128:13626

TITLE: New Well-Defined Poly(2,7-fluorene) Derivatives:
Photoluminescence and Base Doping

AUTHOR(S): Ranger, Maxime; Rondeau, Dany; Leclerc, Mario
CORPORATE SOURCE: Departement de Chimie, Universite de Montreal,
Montreal, QC, H3C 3J7, Can.

SOURCE: Macromolecules (1997), 30(25), 7686-7691

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 26 Nov 1997

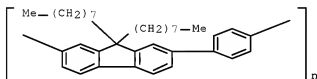
AB Well-defined poly(2,7-fluorene) derivs. were prepared through Pd-catalyzed couplings between various 9,9-disubstituted or 9-monosubstituted 2,7-dibromofluorenes and 2,7-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9-dioctylfluorene. Using this versatile synthetic method, processable polyfluorenes were obtained in good yields. In solution, all these neutral yellow polymers exhibit blue emission (maximum of emission around 410 nm) with high quantum yields (up to 0.87). Moreover, novel acidic polyfluorene derivs. were synthesized (e.g., poly[2,7'-(alkyl 9,9-dioctyl-7,2'-bifluorene-9'-carboxylate)]s), which show elec. conductivities of 10⁻⁶-10⁻⁵ S/cm. upon base doping. This new doping method for conjugated polymers could open the way to the preparation of air-stable electron-injecting electrodes. Both photophys. and elec. properties of these polymers are quite promising for the fabrication of efficient blue-light-emitting devices.

IT 198964-62-4P

(preparation of polyfluorene derivs. and their photoluminescence and base doping)

RN 198964-62-4 HCAPLUS

CN Poly[(9,9-dioctyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)

IT 195456-48-5P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9-dioctylfluorene-2,7-dibromo-9,9-dioctylfluorene copolymer, sru 196207-60-0P 196207-62-2P 198964-57-7P 198964-62-4P 198964-67-9P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9-dioctylfluorene-2,7-dibromofluorene copolymer 198964-71-5P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9-dioctylfluorene-2,7-dibromofluorene copolymer, sru 198964-76-0P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9-dioctylfluorene-2,7-dibromo-9,9-dioctylfluorene copolymer 198964-87-3P 198964-91-9P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-diethyl 2,7-dibromofluorene-9,9-dicarboxylate copolymer, sru 198964-96-4P 198964-98-6P, 2,7-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-(methoxyethoxy)ethyl 2,7-dibromofluorene-9-dicarboxylate copolymer, sru (preparation of polyfluorene derivs. and their photoluminescence and base doping)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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FILE 'HCAPLUS' ENTERED AT 10:52:21 ON 04 JUN 2008

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        SEL RN

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        I OR 16433-88-8/BI OR 189367-54-2/BI OR 233753-19-0/BI OR
        233753-20-3/BI OR 250597-29-6/BI OR 2674-34-2/BI OR
        3375-31-3/BI OR 439938-40-6/BI OR 439938-43-9/BI OR
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        681858-73-1/BI OR 74-96-4/BI OR 7726-95-6/BI OR 869-24-9/BI
        )
L3      STR
L4      50 SEA SSS SAM L3
L5      6 SEA ABB=ON  PLU=ON  L2 AND PMS/CI
L6      16 SEA ABB=ON  PLU=ON  L2 NOT L5
L7      1865 SEA SSS FUL L3
L8      3 SEA ABB=ON  PLU=ON  L7 AND L2
        SAV L7 HEI649/A
L9      3 SEA ABB=ON  PLU=ON  L5 NOT L8

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L10     996 SEA ABB=ON  PLU=ON  L7
L11     1 SEA ABB=ON  PLU=ON  L10 AND L1
L12     462 SEA ABB=ON  PLU=ON  L10(L)PREP/RL
L13     297 SEA ABB=ON  PLU=ON  L12 AND (POLYMER? OR PLASTIC?)/SC, SX
L14     107 SEA ABB=ON  PLU=ON  L13 AND CONJUGAT?(3A)POLYMER?
L15     74 SEA ABB=ON  PLU=ON  L13 AND CONJUGAT?(A)POLYMER?
L16     28 SEA ABB=ON  PLU=ON  L15 AND (1840-2003)/PRY, AY, PY
L17     80 SEA ABB=ON  PLU=ON  L12 AND CONJUGAT?(A)POLYMER?
L18     113 SEA ABB=ON  PLU=ON  L14 OR L17
L19     37 SEA ABB=ON  PLU=ON  L18 AND (1840-2003)/PRY, AY, PY
L20     37 SEA ABB=ON  PLU=ON  L16 OR

```